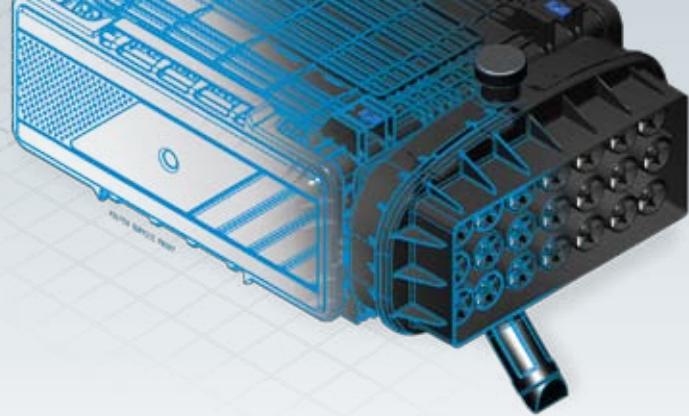


Air Filtration Technology

AIR





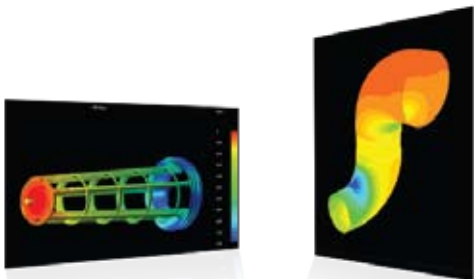
Intelligent Design Approaching the Science of Filtration

Fostering a Culture of Intelligent Design, Manufacturing, and Testing

Cummins Filtration approaches the science of filtration by employing intelligent methods and intelligent people. Our Six Sigma design method is an ingrained discipline that augments 90 years of cumulative system design knowledge. This approach, along with rigorous validation testing, a refined library of design tools, and the staffing of industry-leading scientists has resulted in improved design and increased speed to market.

Cummins Filtration utilizes design tools such as:

- ALD (Analysis Led Design)
- CFD (Computational Fluid Dynamics)
- FEA (Finite Element Analysis)



Based on specific space, performance, and environmental factors, we work with each customer to reach an efficient and cost effective design. This is how we have successfully met the needs of both on and off highway original equipment manufacturers over the years.

With manufacturing facilities that span the globe, many of our processes such as injection molding are performed in-house. The full-dimensional stability and complex geometry from these advanced processes result in a lighter-weight product with clear cost advantages due to less material, parts, and manufacturing steps. Many of these processes also enable us to provide additional benefits to customers, including the option to utilize reground scrap material to optimize costs and produce less waste.



Performance Testing

- Fractional Efficiency Media
- Gravimetric Efficiency (up to 3000cfm)
- Large Stationary Vehicle Acoustics
- Drive-By and In-Cabin Acoustics

Material Testing

- Tension / Compression / Impact
- Salt Spray / Humidity
- UV & Chemical Challenges
- Scanning Electron Microscope

Dynamic Testing

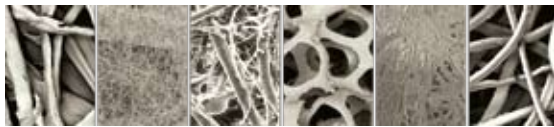
- MTS Multi-Axis Simulation Table (0-50 Hz)
- Single-Axis Electrodynamic Testing (5-2000 Hz)
- In-Field Vibration Measurement Capability
- Cycle / Fatigue Testing



Expertise in Media Technology

Specialized Media for Specialized Environments

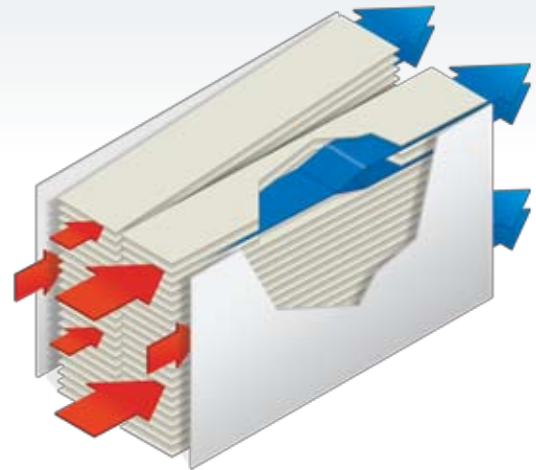
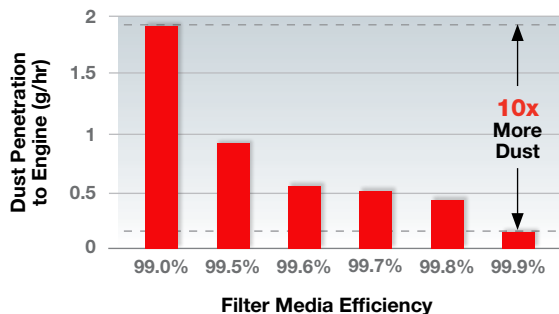
The type of media employed in our systems is specific to each environmental condition. Explicit medias are applied when environments specifically warrant the air systems to repel conditions such as fungus, heat extremes and moisture. Cummins Filtration employs world renowned specialists to utilize a broad array of media types. From standard to sub-micron, our media is produced to perform in accordance with OEM specifications and SAE/ISO standards.



Cellulose Nano Fiber Microglass Foam Melt Blown Synthetic

One media type can be significantly more effective than another – even if the difference in efficiency appears to be marginal. The test results below were obtained in high dust conditions (200 mg/m³). An air filter with 99.0% efficiency permits twice as much dust to pass into the engine compared to an air filter with 99.5% efficiency. This means 10 times more dust than with 99.9% efficiency.

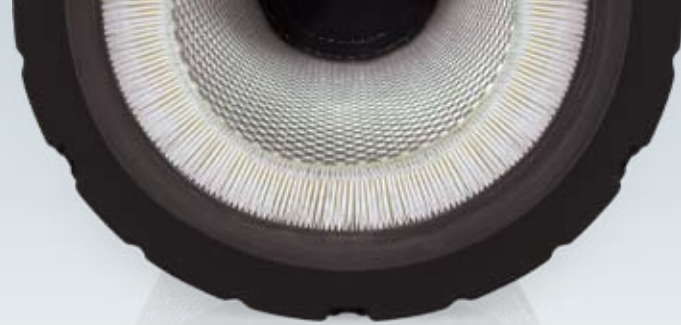
Effects of Media on Dust Penetration



Unique rectangular "V-Block" configuration of the Direct Flow media for optimized space and performance.

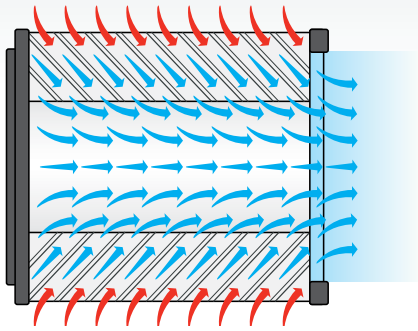
Designed to Exceed Specifications

Cummins Filtration is experienced in meeting technical specifications including fiber size, shape, pore size, paper thickness weave and mechanical strength. For example, our dimple pleat media system ensures that pleats are evenly spaced, spreading the air equally across the surface to maximize filter capacity and life. Special resins can also be used to impregnate the media providing additional performance. Our hot melt bonding ensures proper alignment and protection of pleats throughout filter life. Highly resilient urethane seals protect the media and ensure an effective fit throughout the filter's service life.



OptiAir™

Innovation in Radial Seal Design



OptiAir Media Technology

With its unique design, OptiAir delivers higher air flow, lower restriction and greater capacity than conventional radial seal filters as a result of 2 major design innovations:

- **Up to 30% More Effective Media Area** by optimizing the pleat spacing and pleat depth of the filter element.
- **Up to 60% More Outlet Area** allowing for higher flow rates with lower initial restriction.



Design Flexibility

OptiAir housings, which come in both all composite or hybrid composite and metal configurations, provide design flexibility allowing customization for varying needs. Design options include 360° flexible mounting, multiple outlet configurations and a pressure tap for easy filter restriction gauge installation.

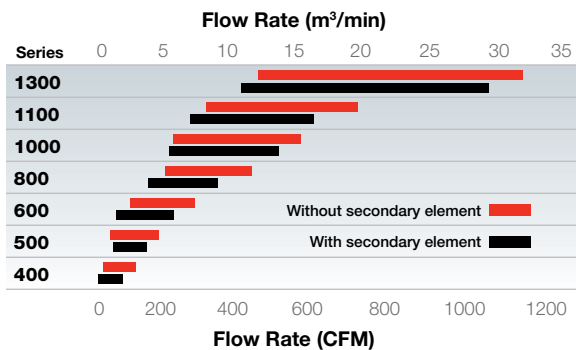


Easy to Service

For easier service, the OptiAir has a Mono Latch Twist Lock™ Cover with Multi Locking Positions which help to reduce overall maintenance time.

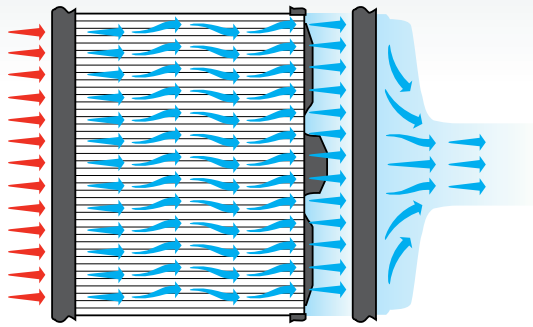
Complete Coverage & Protection

OptiAir technology covers a complete range of options for both on and off highway applications up to 1100 CFM (31.15 m³/min) in the composite design, and up to 1600 (45.31 m³/min) in the hybrid design. All options include an integrated precleaner, secondary element and a dust ejection valve for additional protection from particulates and moisture.



Direct Flow™

Versatility & Performance
in One Package



Direct Flow Media Technology

The proven integrated Direct Flow technology utilizes highly optimized, stiff phenolic media arrayed in a rectangular "V-Block" configuration which optimizes the space normally wasted in the inner diameter of a typical cylindrical air filter. This unique design provides improved performance over conventional products, including:

- **Up to 50% Improved Performance to Size Ratio** by utilizing more media than cylindrical systems.
- **Greater than 99.97% Efficiency Over Filter Life** resulting in improved service intervals.
- **Improved Design Flexibility** allowing for mounting in locations not suitable with conventional designs.



Versatile Design

Available in flow ranges from 180-1300 CFM (5.10 - 36.81 m³/min), Direct Flow is available in both composite and hybrid composite and metal designs which provide product strength and design flexibility for applications in both low and high dust environments. The use of composite materials allows for integrated features including built-in mounting brackets, a restriction gauge port, and a dust ejector valve. For additional protection, Direct Flow provides an optional precleaner and secondary filter.

Promote Your Brand

The patented, proprietary Direct Flow technology supports the use of only the highest quality service products for your applications, limiting the potential for will fit and counterfeit products. Additionally, the unique element design allows for customized artwork including branding and servicing information directly on sides of the air filter.





Support and Information 24-7 Around the Globe

At Cummins Filtration we are committed to providing excellent support for our customers. From our global website to our state of the art online portal to our customer assistance centers around the globe, the support and information you need is only a click or call away.

Online Portal

Find 3D models, CAD files, data sheets, and the Fleetguard Technical Catalog at your convenience 24-7 with our Global Customer Engineering (GCE) portal. All customers are provided with secure logins to protect proprietary information throughout the entire development cycle.



Contact your account manager today to sign up.

Worldwide Presence

From the U.S. to France, Brazil, India and China, Cummins Filtration has technical centers and manufacturing facilities that span the globe. At all of our global facilities, we have a standard for employing state-of-the-art processes as well as highly experienced and capable people in order to provide our customers with the best customer support, no matter where they are located around the world.



For more information, visit
cumminsfiltration.com

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