Specialized Media for Specialized Environments
The type of media employed in our systems is specific to each environmental condition. Explicit media 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.

Expertise in Media Technology

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/m^3). An air filter with 99.2% 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

Air Filtration Technology

Contact your account manager today to sign up.

Support and Information
24-7 Around the Globe

Worldwide Presence
From the U.S. to France, Brazil, India and China, Cummins Filtration has technical centers and manufacturing facilities that serve 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.
Cummins filtration utilizes design tools such as:

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

Performance Testing

- Flow Rate (CFM)
- Flow Rate (m3/min)
- Flow Rate (CFM) 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.

Material Testing

- Temperature / Compression / Impact
- Salt Spray / Humidity
- Tension / Compression / Impact
- In-Feld Vibration Measurement Capability
- MTS Multi-Axis Simulator Table (50-100 Hz)
- Single-Axis Electrodynamic Testing (0-2000 Hz)
- In-field Vibration Measurement Capabilities
- Dynamic Testing
- Fatigue Testing
- Radial Seal Design
- In-Field Vibration Measurement Capability
- Versatile 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 80% 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 ISO 6763 flexible mountings, 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 on sides of the air filter.
- For integrated features including built-in mounting brackets, a restriction gauge port, and a dust ejection valve. For additional protection, Direct Flow provides an optional precleaner and secondary filter.
- 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 Media Technology

The proven integrated Direct Flow technology allows highly optimized, still 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. The unique design provides improved performance over conventional products, including:

- Up to 60% Improved Performance to Size Ratio by allowing more media than cylindrical systems.
- Greater than 80% Efficiency Over Filter Life resulting in improved service intervals.
- Increased Design Flexibility allowing for mounting in locations not available with conventional designs.

Versatile Design

Available in flow rates from 160 - 1000 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 ejection 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 ill fit and counterfeit products. Additionally, the unique element design allows for customised artwork including branding and serving information directly on sides of the air filter.
Air Filtration Technology

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Expertise in Media Technology

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.

Support and Information 24-7 Around the Globe

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Effects of Media on Dust Penetration

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 99.5% efficiency permits twice as much dust to pass into the engine components as an air filter with 95.5% efficiency. This means 10 times more dust than with 99.5% efficiency.

Filter Media Efficiency

Dust Penetration to Engine (g/hr)

99.0% 99.5% 99.6% 99.7% 99.8% 99.9%

Filter Media Efficiency

Contact your account manager today to sign up.

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Effects of Media on Dust Penetration

For more information, visit cumminsfiltration.com
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 organized discipline that augments 60 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 output in market.

Cummins Filtration utilizes design tools such as:

- ALD (Analysis Led Design)
- CFD (Computational Fluid Dynamics)
- FEA (Finite Element Analysis)
- Dynamic Testing
- In-Field Vibration Measurement Capability
- Single-Axis Electrodynamic Testing (5-2000 Hz)
- Material Testing
- Materials Testing Table (5-10 Hz)
- Single-Axis Electrodynamic Testing (3-2000 Hz)
- In-Vehicle Measurement Capability
- Cycle / Fatigue Testing
- Scanning Electron Microscope

Performance Testing

- Frictional Efficiency Media
- Grammage Efficiency (up to 3000g)
- Large Electrodynamic Vehicle Actuators
- Drive-up and In-Cab Actuators

Dynamic Testing

- MTS Multi-Axial Simulator Table (5-10 Hz)
- Single-Axis Electrodynamic Testing (5-2000 Hz)
- In-Vehicle Measurement Capability
- Cycle / Fatigue Testing

Material Testing

- Tensile / Compression / Impact
- Salt Spray / Humidity
- Tension / Compression / Impact
- Drive-By and In-Cabin
- Salt Spray / Humidity
- Tension / Compression / Impact
- Drive-By and In-Cabin

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 pivot spacing and pivot depth of the filter element.
- Up to 80% More Dirt 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 for customized ventilation needs. Design options include 360° flexible mounting, a patented integrated Direct Flow technology, a combined secondary filter element, and a dust ejection valve for additional protection from fine particulates and moisture.

Complete Coverage & Protection

OptiAir technology covers a complete range of options for both on and off highway applications up to 1100 (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.

Promote Your Brand

The patented integrated 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 custom artwork including branding and servicing information directly along the sides of the air filter.

Intelligent

Design Approaching the Science of Filtration

Performance Testing

- Frictional Efficiency Media
- Grammage Efficiency (up to 3000g)
- Large Electrodynamic Vehicle Actuators
- Drive-up and In-Cab Actuators

Dynamic Testing

- MTS Multi-Axial Simulator Table (5-10 Hz)
- Single-Axis Electrodynamic Testing (5-2000 Hz)
- In-Vehicle Measurement Capability
- Cycle / Fatigue Testing

Material Testing

- Tensile / Compression / Impact
- Salt Spray / Humidity
- Tension / Compression / Impact
- Drive-By and In-Cab
- Salt Spray / Humidity
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Direct Flow

Versatility & Performance in One Package

Direct Flow Media Technology

The proven integrated Direct Flow technology, allows highly optimized, stiff phenolic media arrays in a rectangular “V-Bank” 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 60% Improved Performance to Size Ratio
- By adding more media than cylindrical systems.
- Greater than 95% Efficiency Over Filter Life resulting in improved service intervals.
- Allows for Direct Flow Flexibility allowing for mounting in locations not available with conventional designs.

Versatile Design

Available in flow ranges from 100-1500 CFM [0.10 - 31.15 m3/min], Direct Flow is available in both composite and hybrid composite and metal designs which provide product strength and design feasibility 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 ejection valve. For additional protection, Direct Flow provides an optional precleaner and filter element.

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 pivot spacing and pivot depth of the filter element.
- Up to 80% More Dirt 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 for customized ventilation 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 M/A-Locking Fins 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 (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.

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- ALD (Analysis Led Design)
- CFD (Computational Fluid Dynamics)
- FEA (Finite Element Analysis)
- In-Field Vibration Measurement Capability
- Single-Axis Electrodynamic Testing (5-2000 Hz)
- Drive-By and In-Cabin Acoustics
- Large Stationary Vehicle Acoustics
- Salt Spray / Humidity
- Tension / Compression / Impact

Performance Testing

- Frictional Efficiency Media
- Gravimetrical Efficiency (up to 3000cfm)
- Large Electrostatic Vehicle Acoustics
- Drive-By and In-Cabin Acoustics

Material Testing

- Tear / Compression / Impact
- Salt Spray / Humidity
- UPL & Chemical Challenges
- Scanning Electron Microscope

Dynamic Testing

- MTS Multi-Axis Sinulator Table (5.10 Hz)
- Single-Axe Electromagnetic Testing (0-2010 Hz)
- In-Field Vibration Measurement Capability
- Cycle / Fatigue Testing

OptiAir Media Technology

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Design Flexibility

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Easy to Service

For easier service, the OptiAir has a Mono Latch Twist 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.

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 1500 CFM (42.81 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.

Versatile Design

Available in flow ranges from 180-1300 CFM (6.10 – 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.

Intelligent Design Approaching the Science of Filtration

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 performance benefits. 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.
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Effects of Media on Dust Penetration

Filter Media Efficiency

- Dust Penetration to Engine (g/hr)
- Filter Media Efficiency

For more information, visit cumminsfiltration.com

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