



## Air Intake Systems

Standard product offering for engines & vehicles



Ineffective filtration can cause serious wear to the engine and its components... leading to low engine power, excessive fuel consumption and ultimately, expensive repairs.

Donaldson air filtration systems can reduce down time and maintenance costs, and increase the life and performance of your engine, delivering clean air when your engine needs it most!



# Why Donaldson

Broad Air Product Offering  
Light to Heavy Dust Conditions  
Air Cleaners for New Equipment  
Replacements for In-Use Equipment  
Wide Variety of Accessories

## Proven Technology

PowerCore® Systems  
Ultra-Web® Nanofiber Technology  
Pleatloc™ Media Spacing  
RadialSeal™ Sealing Technology  
Donaldson Endurance™  
Single & Two-Stage Filtration  
Pre-cleaners & Inlet Hoods  
Filter Indicators & Gauges

## Lasting Quality & Value

Quality & Environmental Management Practices  
TS & ISO Certified  
Durable products that protect engines and control  
maintenance costs

## Readily Available

Stock Product - No Lead Time  
Ship Orders Same Day Received  
Local Availability Through Distributors  
and OE Dealers

## Single Filtration Source

Not just air. Donaldson has lube, fuel, coolant,  
hydraulic, transmission filters for all vehicles from  
pick-ups and SUVs to mining haul trucks!

## History of Innovation

Established as a filtration company in 1915  
Over 1500 active patents worldwide

## Air Cleaner Families

### PowerCore® • E Series • F Series • S Series

PSD, ECD, EBB, ECD, EBA, ERA, ECG, FWA, FHG,  
FPG, FKB, FRG, FTG, XRB, SRG, STB, SSG



Custom PowerCore® intake systems are becoming standard on OE equipment around the world. Small OEs now have access to off-the-shelf line of original PowerCore PSD air cleaners.



New XRB Housings have radial seal technology, built in mounting brackets and latched covers. Each feature takes less time to service than older housing designs.



SSG Housings can be found on large mining vehicles. These units are massive in size and performance compared to most other housings. Their overall size is about 43" x 50" (1092mm x 1255mm)



EPG Housings were one of the first series that featured radial seal technology. Metal end caps on pleated filters were replaced with a urethane end cap design. The unique feature simplified service for mechanics and created a more reliable critical seal between the housing cover and filter. Donaldson Endurance™ extended service filters with Ultra-Web Technology are an option.



FPG Housings are ideally suited for smaller engine intake requirements.

# Materials • Finishes • Construction

Designed for long life, rust resistance and good looks!

## Injection and Blow-Molded Air Cleaners

Our non-metal finish is black plastic and can be found on our DuraLites, PowerCore (PSD) and other radial seal air cleaners (FPG, XRB, FKB). Advantages include:

- Lighter weight than metal air cleaners
- Corrosion and chemical resistant
- Impact, mar and vibration resistant



## Polymer Coating Resists Corrosion

Donaldson's gloss black finish – on most of our metal air cleaners (ERA, FVG, FRG) – is resistant to chemicals and corrosion.

Advantages include:

- Improved durability. Coating lasts 5 to 10 times longer than traditional paint.
- Impact and mar resistant. Coating is up to 17 times harder than most solvent-based paint.
- Consistent coating thickness – even in crevices and small, hard-to-reach places.



## Buff Prime Finish

A buff prime finish is applied to our large S series air cleaners (SRG, STB, SSG and STG) so our customers can apply their own paint to match the overall look of the equipment.



## Intake Accessories

for On and Off-Road Systems

### Donaldson has what you need to:

- ✓ Mount or install an air cleaner
- ✓ Solve air intake water problems
- ✓ Pre-clean or protect air inlet from debris
- ✓ Know when to service a filter
- ✓ Aspirate (or scavenge) an intake system
- ✓ Connect intake components
- ✓ Reduce service time
- ✓ Replace the filter







# Air Filter Features & Technology

## RadialSeal™ filter seals

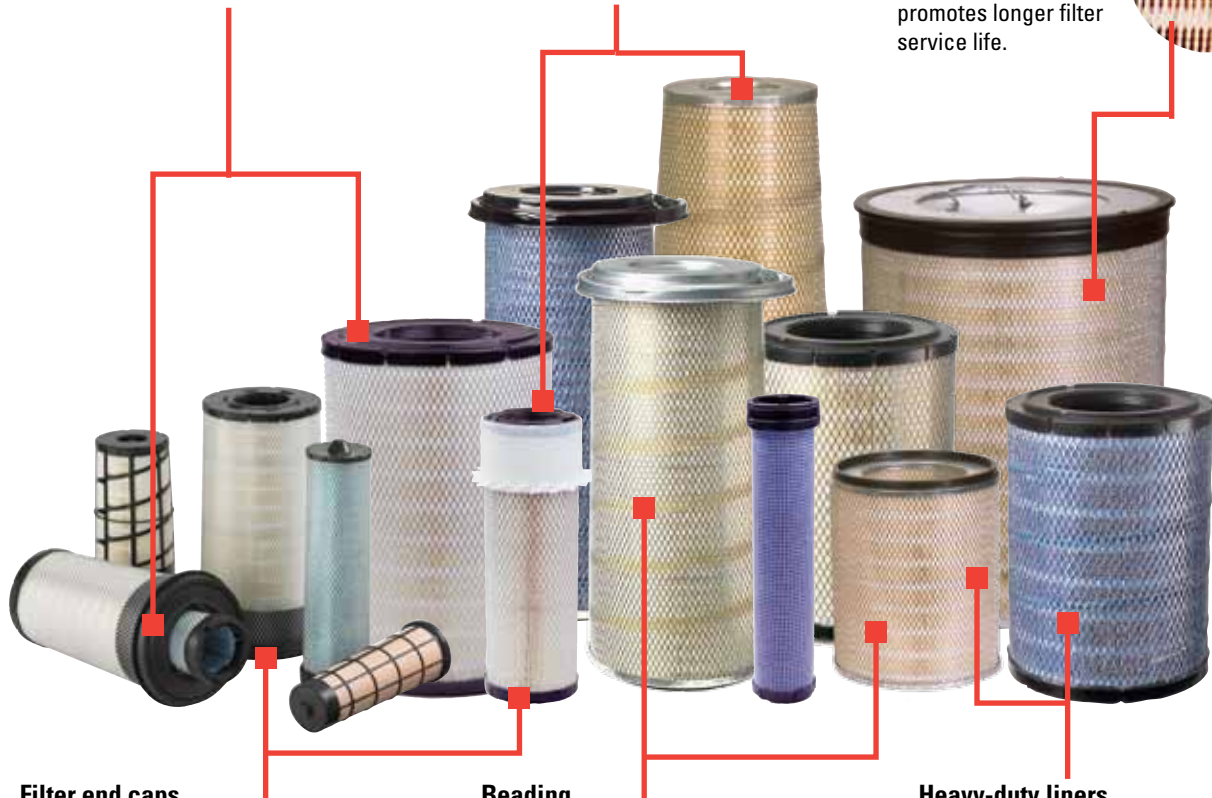
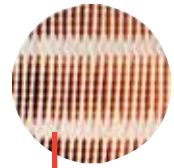
RadialSeal filters slip easily on and off the outlet tube during installation and service. This design eliminated the separate gaskets used with metal end-cap filters.

## Axial filter seals

Strong, pliable gasket ensures a leak-free seal when properly installed. The gasket won't harden or deteriorate over the useful life of the filter.

## Pleatloc™ media spacing

Ensures uniform pleat spacing, keeps filter media from bunching during operation and promotes longer filter service life.



## Filter end caps

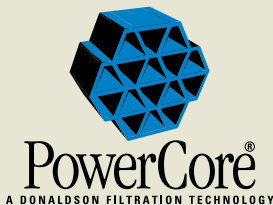
Designed to protect the filter media and provide structural integrity.

## Beading

Applied to both inner and outer liners, beading is designed to stabilize the media and prevent pleat tip wear.

## Heavy-duty liners

Corrosion resistant, coated steel liners support the filter media during operation and maximizes airflow.



## Original PowerCore® Filtration Technology

PowerCore provides maximum design flexibility. You gain equal performance in significantly less space, freedom to design unique configurations to fit tight spots, and overall design simplicity.



## RadialSeal™ filter seals

Our radial seal technology on PowerCore filters provides a tight critical seal on unique filter shapes.

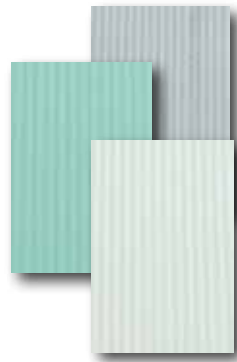
## Non-metal construction

Weighs less and with less disposal impact.

## PowerCore® Filtration Technology

# Filtration Performance

The standard filter media in our primary air filters is a cellulose based material used primarily in single and two-stage intake system applications (i.e., off-road, on-highway trucks, buses and underground mines.) We also have flame retardant and vibration resistant cellulose media variations that are required in specialty engine applications.



Donaldson Filter Media

Our blue primary air filters (Donaldson Endurance™ and PowerCore® filters) contain Ultra-Web® nanofiber filtration technology. This media is composed of a cellulose or a cellulose/synthetic substrate with nanofibers applied to one side. Filters with Ultra-Web media deliver consistent, high efficiency filtration. The Donaldson Endurance air filters are guaranteed to go twice the distance compared to their original cellulose filters. Blue filters in PowerCore housings offer high efficiency, with the added benefit of a more compact air cleaner.

## ULTRA-WEB®

Primary engine filters featuring Ultra-Web are always blue!



Many Donaldson air cleaners have safety (or secondary) filters to protect the engine during the service of the primary filter or in case the primary filter is damaged. A variety of safety filter medias are used including pleated cellulose, pleated or flat cellulose/synthetic and spun bond materials treated with special additives.

## Key factors that affect air cleaner selection and performance

The engine intake system is designed to direct, isolate and capture contaminant before it reaches the engine.

The dust environment in which the engine must work, the available space for installation and service, and the filter service interval are key factors that affect air cleaner selection and performance.

Proper maintenance is another essential factor. A damaged filter or improper servicing will pass contaminants that cause wear in the engine.

**Compare for yourself – see how much dust can pass through your air filter during 100 hours of operation.**

**Donaldson Air Filter Media**  
Ultra-Web®      Standard

**Will-fit Air Filters**  
Standard Media



**99.99%**  
0.1 gram dust



**99.9%**  
1 gram dust



**99.0%**  
10 grams dust

Filtration efficiency (%) and dust passed after exposure to 1 kilogram of dust (approximately 100 hours of operation) for a typical off-road application.

Donaldson efficiency is based on ISO 5011 – the test standard for air filter life and efficiency.

# Donaldson Air Filtration Technologies Help OEMs Meet Global Emissions Regulations

The emissions solutions introduced to meet diesel engine emissions regulations have resulted in numerous vehicle design changes for original equipment manufacturers. Changes that we have seen include engine compartment size reductions and lower system weight requirements.

For engine manufacturers, regulators now recognize that engine blow-by gas emitted from the crankcase is a major emissions source and require that the vent be closed or filtered with high efficiency filtration.

Donaldson has been providing OEMs with custom and standard filtration solutions that meet their specifications to be emissions compliant: PowerCore® G2 Filtration Technology and Spiracle™ Crankcase Filtration Systems.

Our PowerCore G2 Filtration Technology is a perfect fit for the new space limitations, offering higher capacity and improved efficiency in a much smaller footprint. The geometric flexibility of PowerCore air intake systems gives OEM engineers the freedom to design unique configurations to fit tight spots.



Our Spiracle™ Crankcase Filtration Systems for CCV or OCV systems reduce or eliminate harmful and unwanted crankcase emissions. Our Synteq XP™ coalescing media technology offers high efficiency filtration with low operating pressure drop.



Three standard models (small, small extended and mid-sized) are available for engine blow-by flow ranges up to 300 lpm / 10.6 cfm and with blow-by mass flow rates up to 15 gms/hr

# Our History of Air Filtration Innovation

Donaldson was established in 1915. The time line displays the innovations introduced into the market place.

## 1910s



First-ever air cleaner invented by Frank Donaldson

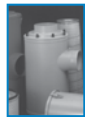
## 1930s



First closed crankcase ventilation system (pollution control device) invented for cars



Patent issued for oil-washed air cleaner



## 1950s

Innovative dry-type air cleaner and filter

## 1970s

Developed Self Cleaning Air Filter (SCAF)

## 1980s



Donaldson pioneered Ultra-Web® Nanofiber Filtration Technology



Innovative RadialSeal™ sealing technology



Pleatloc™ media spacing invented

## 1990s



Ultra-Web® Nanofiber Filtration Technology first used in engine filtration products



Donaldson PowerCore® Filtration Technology developed



Donaldson Endurance™ extended service filters introduced

Pulse Jet Air Cleaner (PJAC™) applied on M1 Abrams tank

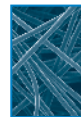
## 2000 and Beyond



Ground-breaking PowerCore® G2 Filtration Technology introduced



Spiracle™ crankcase filtration introduced to eliminate emissions from open crankcase vents



Synteq™ XP filter media launched in next generation Duramax® and Spiracle™ crankcase filtration system



Introduced PJAC™ Ultra®



PSD PowerCore Standard Air Cleaner Line offered and expanded



FKB Air Cleaner Family launched



Donaldson introduces PowerCore retrofit kit for 7.3L Ford PowerStroke Engine



Donaldson Endurance™ air filter line expanded



Redesigned TopSpin™ pre-cleaner



XRB Air Cleaners for medium dust conditions



Dust Dumpa new accessory simplifies maintenance at mines



SSG Retrofit Kit introduced for older SRG air cleaner



# Air Filtration Go-To Place [www.donaldson-filters.com](http://www.donaldson-filters.com)

Need to find a local source for Donaldson air filtration products?

—>> go to <https://dynamic.donaldson.com/webc/WebStore/locator/locator.html>

Need to select a new air cleaner?

—>> go to [www.donaldson.com/aircleaners](http://www.donaldson.com/aircleaners)

Need a replacement filter for your air cleaner?

—>> go to [www.donaldson-filters.com](http://www.donaldson-filters.com)

Looking for a PDF file of our Engine Intake Systems Catalog?

—>> go to <http://www.donaldson-filters.com/literature.html>

View what we have for your industry

—>> go to <http://www.donaldson-filters.com/industries.html>

Looking for helpful maintenance tips?

—>> go to <http://www.donaldson.com/en/engine/shoptalk/index.html>

Why is Ultra-Web Better?

—>> go to <http://www.ultrawebisalwaysbetter.com/>



## Single Filtration Source

Not just air. Donaldson has lube, fuel, coolant, hydraulic, and transmission filters for all vehicles, from pick-ups and SUVs, to mining haul trucks!



## Global Presence with Local Touch

Donaldson has established a global distribution network to serve our customers locally as well as worldwide. We operate as a global company with a network for primary distribution locations that support a mature hub of regional distribution centers and warehouses.

Donaldson distribution centers are strategically located to quickly and accurately deliver products wherever replacement products are needed. We work with a network of transportation, third part logistics companies, consolidators, and cross-docking facilities to meet or exceed our customers' requirements.

All regions of the world benefit from our global umbrella of distribution centers. We focus our efforts on local support and the capabilities of our staff.



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