



**Filtration System for
Open and Closed Engine Crankcase Vents**
STANDARD & CUSTOM DESIGNS



Filtration Technology by Donaldson



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Helps Meet Environmental Regulations

Open engine crankcase vents produce blow-by gases/fumes which have become a major emissions source as tailpipe emissions are lowered.

Reducing crankcase emissions helps reduce total engine emissions

Standard and Custom Design Options

Allows you to choose - depending on your engine filtration specifications, project size, timing and budget.

Systems for both closed crankcase vents (CCV) and open crankcase vents (OCV).

Proprietary Synteq XP™ Media Technology

High overall efficiency (>95%) keeps turbocharger/intercooler clean

Very high efficiency on small particles prevents significant component wear

Better oil drainage properties compared to other filter media.

Filter service intervals up to 2000 hours⁽¹⁾

Lower System Cost

No wires or power requirements for operation

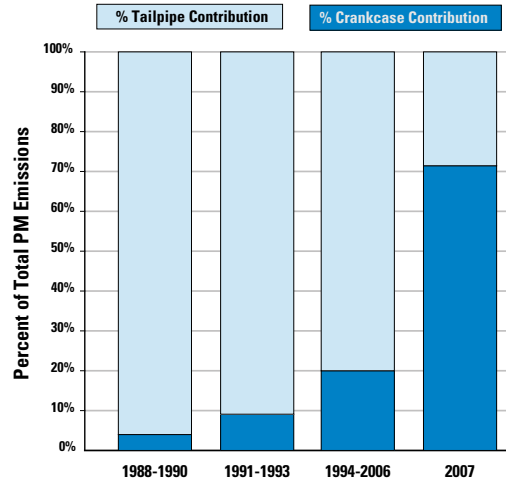
Invented by Donaldson

Donaldson has been inventing air filtration systems since 1915.

Spiracle™ products are built with Donaldson Technology

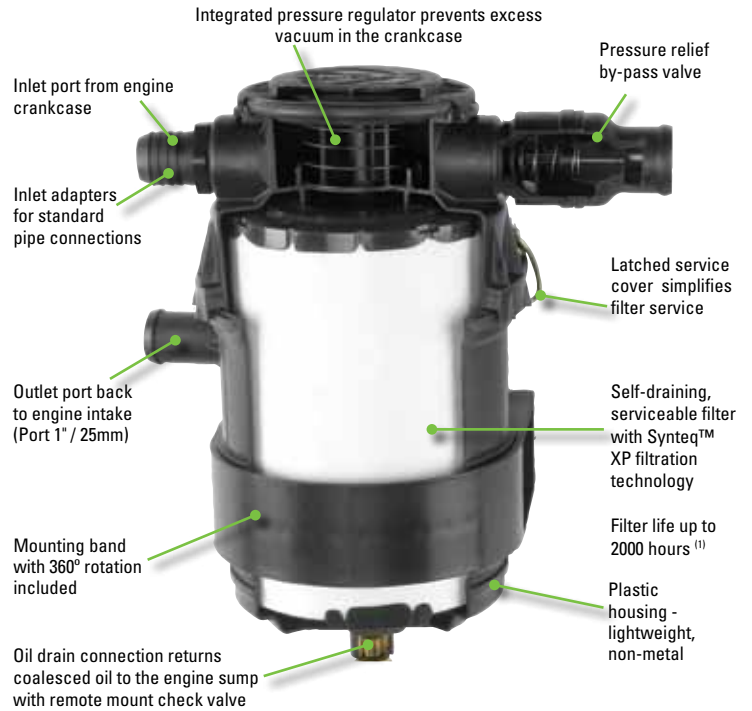
Emissions Contributions Tailpipe & Crankcase

Crankcase emissions levels in diesel engines have remained relatively constant up to 2006. On newer engines, as emissions from tailpipes reduce, crankcase emissions become a greater share of total allowable particulate matter (PM) emissions.



Standard (off-the-shelf) Product Offering

Mid-Size



Note: Porting options for filter indicator are available.

A Serviceable Filter System Provides the Greatest Overall Performance

High Efficiency Filtration for Crankcase Aerosol and Submicron Particulate

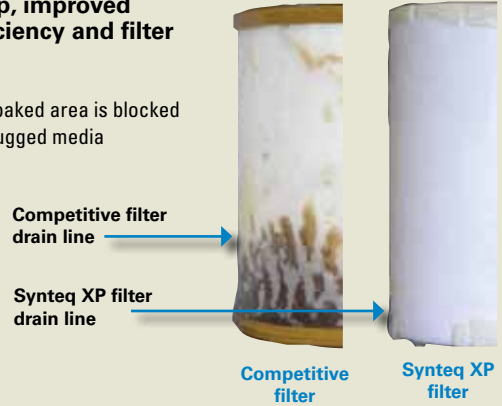
Patent-pending, Synteq XP is a revolutionary new media that has a lower operating pressure drop, higher efficiency and longer filter life compared to traditional media.



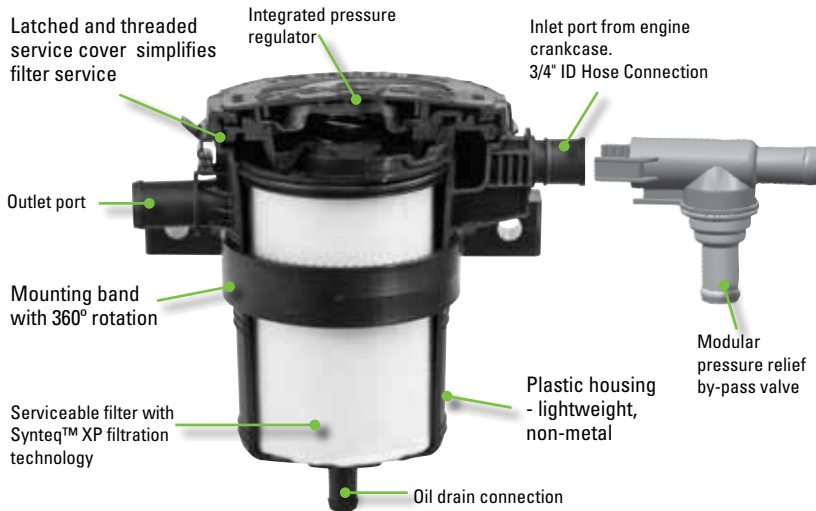
Better oil drainage means less pressure drop, improved efficiency and filter life.

Oil soaked area is blocked or plugged media

Steady State Oil Line Height Comparison after 16 hours



Small Sized



Custom Applications

If the standard product offering does not meet your requirements, contact Donaldson.

Spiracle Filtration Systems can be produced in a variety of shapes and sizes to match the most difficult spaces.



Retrofit Applications

Over 16,000 Spiracle Systems Installed!

As part of U.S. EPA and CARB regulatory agency initiatives, buses, trucks and municipal fleets throughout the United States are equipped with metal and plastic Spiracle™ crankcase filtration systems.



Part Numbers:	Medium S040031	Small S040033 S040044 ⁽²⁾	Small Extended Length S040035 S040045 ⁽²⁾
Operating Range			
Blow-by Airflow Rate	150 – 300 lpm 5.3 – 10.6 cfm)	0-150 lpm 0 to 5.3 cfm	100-225 lpm 3.5 - 7.9 cfm
Blow-by Mass Flow Rate	0 – 15 gms/hr	0 to 5 gms/hr	0 to 10 gms/hr
Envelope Size (w x d x l)	251 W x 220 D x 315 L	186 W x 130 D x 177 L	186 W x 130 D x 214 L

(2) Models with modular pressure relief by-pass valve.

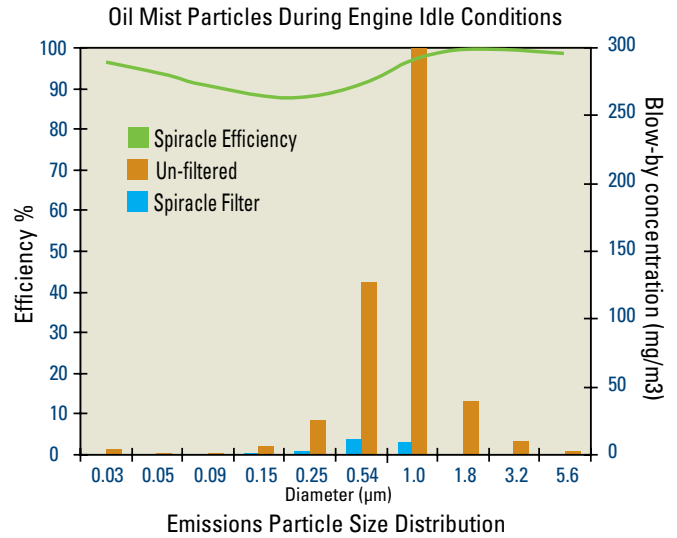
Donaldson Crankcase Filtration Development Tools

We understand the crankcase ventilation challenges (pressure, efficiency and size) and have the technical tools and expertise in place to help you continue to reduce your total emissions by managing crankcase emissions.

This crankcase gas test bench is used to verify design concepts by rapidly and accurately measuring filter performance under simulated engine flows, temperatures and aerosols.

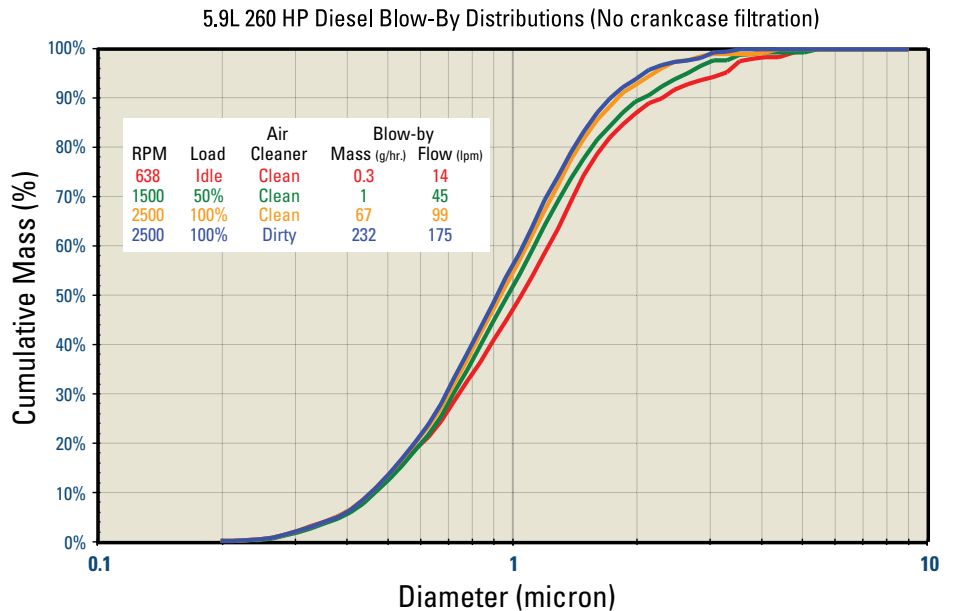


Spiracle crankcase filtration systems are efficient over a broad range of oil mist sizes. The oil mist from engine blow-by typically ranges from 30 nanometers to 6 microns in size.



What's in your engine blow-by gas?

Donaldson has the capability to measure blow-by gas particulate size distribution and concentrations at various engine conditions. This mobile testing capability allows Donaldson engineers to develop optimized crankcase filtration solutions for the specific needs of our customers. The chart on the right is the result from 5.9L 260 HP engine.



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