Evolutionary Design

The originators of the cartridge collector

The breakthrough performance of the Downflo® Evolution (DFE) family of cartridge dust collectors is the result of Donaldson’s relentless drive to improve its products and exceed customer expectations. Donaldson put decades of industry experience to work to produce a new, best-in-class dust collector capable of reducing equipment size and number of required filters by up to 40% compared to a typical cartridge collector.

A smaller collector helps lower the initial purchase price, reduces filter replacement costs, and opens up valuable manufacturing floor space.

This state of the art collector, coupled with Donaldson’s industry-leading Ultra-Web® nanofibre filtration technology, is truly an intelligent design.

Revolutionary Airflow Management
Directs incoming air to an intelligent dropout zone for reduced filter loading

Breakthrough Filter Cleaning
MaxPulse Cleaning System delivers 27% more cleaning energy to filtration media

Industry-Leading Filtration Design
Positions more filtration media in beneficial locations and Ultra-Web MERV13 media as standard

Results
A smaller cartridge collector with fewer filters and the lowest cost of ownership
Intelligent dropout zone
The DFE’s game-changing dust collection performance is achieved through a combination of design features that result in significant customer benefits.

1 Metal venturis
2 Dropout zone ensures
   • Pre-separation of heavy dust particles
   • Lower pressure loss than baffle design used by competitors
   • Minimal filter element abrasion
Superior Cleaning Performance

MaxPulse Cleaning Performance
The DFE provides breakthrough cleaning performance resulting in improved filtration capacity without sacrificing filter life or taxing compressed air consumption. Typical pulse-jet cleaned dust collectors deliver only a fraction of the compressed air energy to clean the filtration media. The DFE’s proprietary, MaxPulse Cleaning System minimizes energy losses by focusing on the cleaning air’s exact path and delivers uniform cleaning energy to all effective filtration media.

The cleaning action starts with the release of compressed air from the diaphragm valve through a unique, double-diverging pulse nozzle. The nozzle precisely controls the initial pulse expansion to minimize energy losses associated with uncontrolled compressed air expansion. Donaldson Torit’s proprietary, pulse-shaping design distributes the cleaning energy evenly to match the unique shape of the filter.

After exiting the pulse nozzle, the cleaning air flows through smooth, easy transitions into the filter interior ensuring the compressed air expands naturally without abrupt, energy-wasting restrictions, sharp edges, or volume changes. More effective filtration media results in increased airflow capacities through Donaldson dust collection equipment.

Proven in Pulse Test Bench Analysis
Significantly higher pulse pressures are recorded and sustained at critical locations along the filtration media profile. More uniform cleaning results in more effective filtration media over the life of the filter.

27% higher impulse cleaning energy delivered
Cartridge Filter Technology
The DFE filter design is another indication of Donaldson’s commitment to technical research and development. The distinguishing factor in our filters is Ultra-Web filtration technology. Ultra-Web nanofibre media uses a layer of fibres 0.2 to 0.3 microns in diameter to capture contaminants on the surface of the media less than one micron in size. The resulting dust cake is easily cleaned off during the automated collector cleaning cycles providing cleaner air longer, with a minimum MERV* 13 efficiency rating based on ASHRAE 52.2 - 2007 test standards.

Triagonal Filter Shape
The ultimate goal of any pulse-cleaned dust collector is to remove the contaminant from the airstream and get the contaminant into a containment vessel under the equipment’s hopper.

The DFE’s unique shape positions more filter media at the bottom of the cartridge element so pulse-cleaning energy directs the ejected dust toward its ultimate destination – the containment vessel!

DFE TRIAGONAL FILTER
The DFE triagonal filter features more filter media at the bottom of the cartridge element than any other cartridge on the market.
**Asymmetrical Yoke Design**

The interior of the metal filter element endcaps features a specific profile that engages with the collection equipment’s support yoke. The asymmetrical yoke design ensures proper filter installation, seal, and cleaning alignment. No special tools are required, and you never have to enter a confined space or dirty air plenum to do the job.

- Loosen cover with 4-lobe knob. Knob has center lug enabling power tool operation.
- Open hinged filter access cover.
- Filter supported by asymmetrical suspension yoke ensure proper installation for worry-free operation.
Continuing Evolution of Cartridge Collection

**Fewer filters**
Donaldson Torit has been at the forefront of cartridge collection for over 40 years, and has developed game-changing solutions others can only attempt to imitate. Now, the game is changing again! With the DFE’s airflow design, MaxPulse cleaning system, triagonal filter shape, and industry-leading Ultra-Web filtration media, customers benefit from a smaller collector containing fewer filters.

**Air-to Media**
The graphic above shows an example of the Air-to Media ratios for a typical weld fume application. The DFE features higher AMRs, smaller footprint, fewer filters, superior performance, and lowest cost of ownership!
Equipment Comparison

Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

Dust and Fume Removal · Oil Mist Separation

Total Filtration Management

Total Filtration Service

A comprehensive range of services keeps your production at peak performance and at the lowest total cost of ownership.

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