



INDUSTRIAL AIR FILTRATION

Mining with Maximum Efficiency

Dust Control Solutions in Mineral Mining for EV Battery Production



Mining Materials for EV Battery Production

The growth of the EV battery market has created a huge demand for minerals including:

- Cobalt
- Lithium
- Manganese
- Nickel
- Iron
- Phosphate

The extraction and processing of these minerals can be a dusty job, so you need a dust collection system designed to handle heavy, highly abrasive and potentially harmful dusts.

Dust Control for Efficiency, Sustainability

Whether you're surface or underground mining, the challenging dust that's generated is hard on equipment and potentially harmful to employees.

A properly chosen and installed dust collection system from Donaldson can stand up to the harshest conditions, helping create a cleaner, safer mining operation.

A customized dust collection system can:

- Improve air quality
- Extend equipment life and reduce downtime
- Support regulatory compliance
- Improve the sustainability of your operation
- Limit exposure to dust, reducing safety hazards and concerns



A Proven Partner

Backed by more than 250,000 global installations over four decades, and a select network of partners, no other equipment manufacturer is more capable – or more trusted – to solve dust, fume and mist collection challenges than Donaldson.

Processes

We Know Filtration

Donaldson has a long history of serving the mining industry. Our comprehensive portfolio of dust collectors, exhaust hoods and filter media technology can provide an effective solution at each stage of the mining process, including:

- Excavation
- Pulverizing/Crushing
- Conveying
- Material Handling
- Screens
- Bulk Handling



Challenges & Solutions

At Donaldson, our experienced team understands the challenges associated with mineral mining. As a knowledgeable and responsive global industrial filtration partner, we help engineers worldwide design and implement reliable systems that integrate into mining operations with ease across multiple applications.

Challenges



Employee Safety

OSHA standards — along with local regulations — require mining facilities to manage dust in order to protect workers from exposure to potentially harmful substances.



Downtime

Mining produces heavy and abrasive dusts that can hinder processing efficiency by clogging your system, reducing collection capabilities and requiring downtime for maintenance and cleaning.



Environmental Impact

Minimizing airborne dust is essential for protecting air quality and complying with the numerous regulations that govern dust and particulate management in mining operations.

Solutions



Maintain a Cleaner, Safer Work Environment

Donaldson helps you navigate the complex world of dust collection by providing Source or Centralized collection solutions that improve excavation and process environments for workers and equipment.



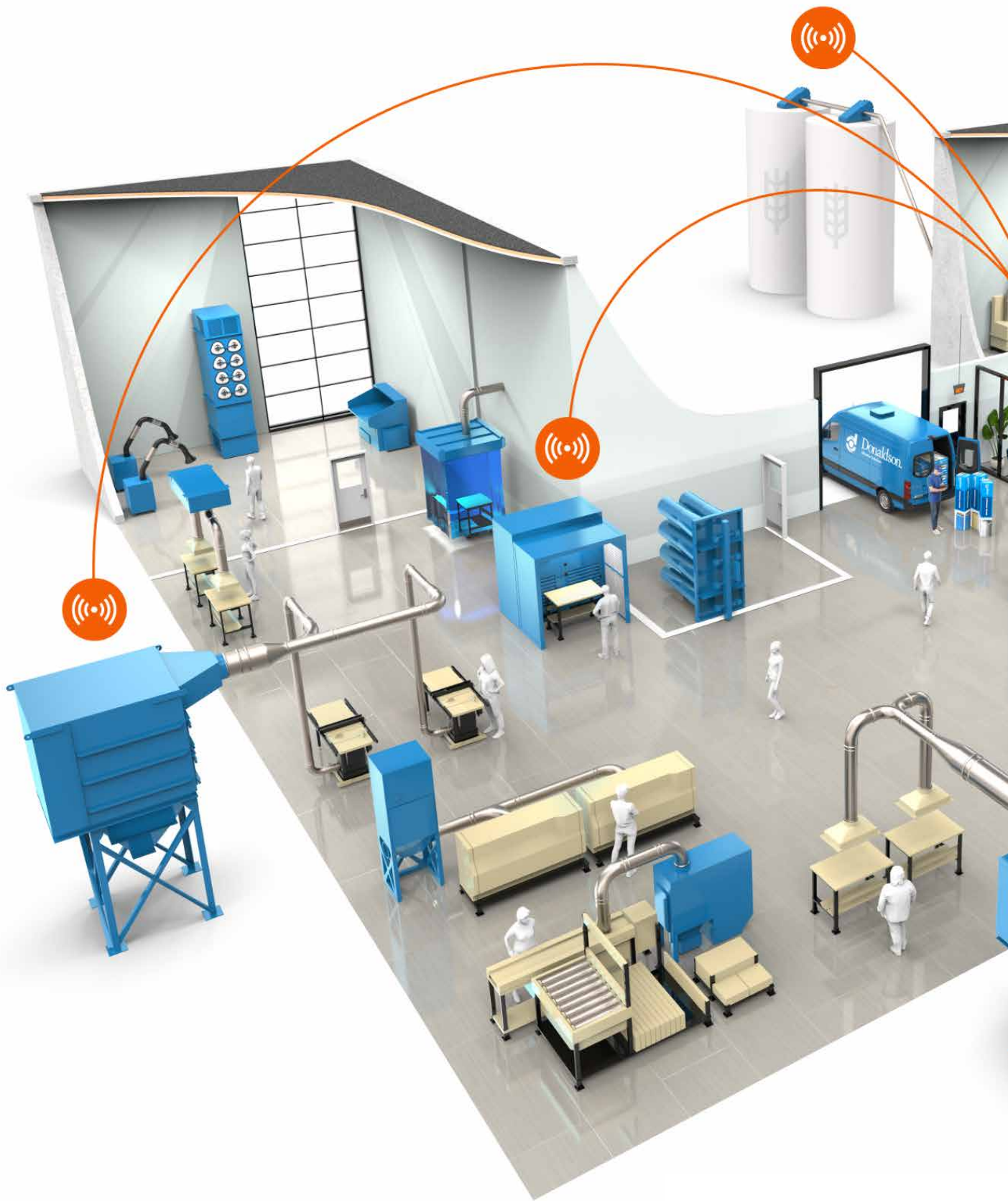
Increase Productivity

By investing in equipment with a track record of reliability, operations can avoid issues that would otherwise reduce productivity. Donaldson collectors and filters are engineered to help maximize uptime.

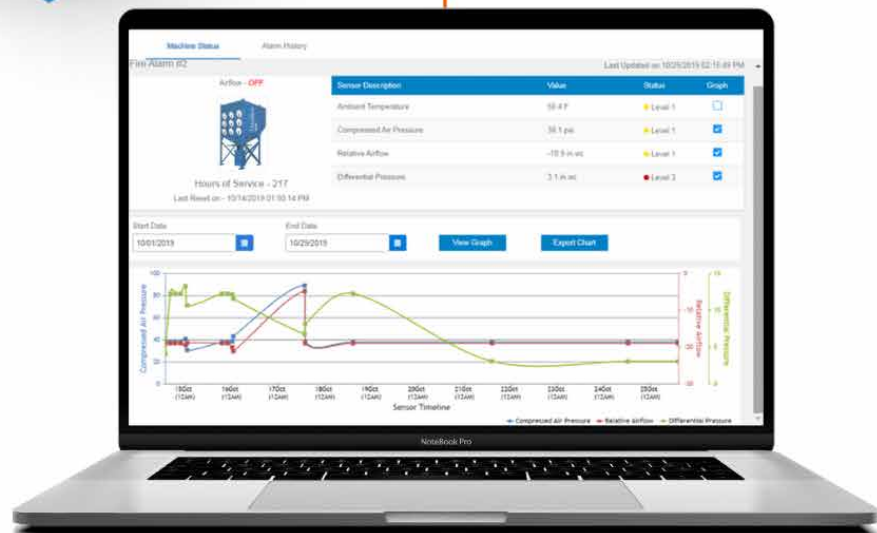


Improve Air Quality

Everywhere material drops through air, dust is generated, including conveyor transfer points and feed points from screens and crushers. Donaldson helps engineers customize dust collection systems — including hoods, ducts, collectors and fans — to minimize airborne dust and protect air quality.



With a Connected Donaldson Smart Collector, organizations can easily track dust collector operations in real-time and leverage the data to optimize performance.



Case Study: Capturing EV Battery Minerals at the Source

Dust particles generated in the mining of minerals used in EV batteries can be extremely fine, typically ranging from 0.3 to 0.5 μm . Additionally, the dust can be highly flammable and pose an explosion risk if not addressed with protective measures.

That's why one of the world's leading producers of lithium-ion batteries turned to Donaldson for a dust collection solution at their operation in Asia.

Their work generates dust from graphite, copper aluminum and other materials. Emissions standards in the region are very low ($<2.1\text{mg}/\text{m}^3$), and the composition of the various dusts means there's always the potential for an explosive event.

With Donaldson's help, the company installed Donaldson Torit® Downflo® Evolution (DFE) dust collectors with added VFD controls. The state-of-the-art collectors, coupled with Donaldson's industry-leading Ultra-Web® fine fiber filtration technology, delivered an effective solution in a small equipment footprint.

The Ultra-Web cartridge filters have a fine fiber layer that capture particles in submicron sizes down to 0.3 μm . The fine fiber layer also enables surface-loading, so the self-cleaning compressed air pulse of the dust collector is able to clean the filters thoroughly — keeping the pressure drop low and extending filter life.

After extended use, the system continues to perform for the organization. The system's smart design helps the customer meet the region's emission level requirements while the collectors' industry-leading Ultra-Web filters deliver extended performance, fewer filter changeouts and a lower overall cost of operation.



Dust Collection & Filtration Solutions for Mineral Mining

Donaldson offers a variety of solutions to meet your specific dust control requirements.



Downflo® Evolution



Dalamatric® G2



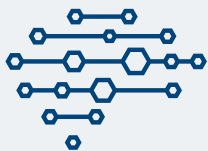
PowerCore® CP Series



Ultra-Web® Spunbond Pleated Filters



Cartridge Filters



Smart Collector
Powered by iCue™ technology

Industrial Filtration Services

Managing your operation's dust collection equipment has never been easier. With a service plan from Donaldson's Industrial Filtration Services, you can take on as much, or as little, of the system's management as you like. The plans include Donaldson's iCue™ connected filtration monitoring technology. Donaldson's team of experts are available 24/7 to monitor your equipment and our certified technicians can manage all maintenance or repair issues on your behalf.

Collecting Confidence

Donaldson's comprehensive dust collection solutions help process owners effectively address their dust, fume, and mist collection challenges by providing knowledgeable guidance, industry-leading equipment as well as unrivaled aftermarket service and support.

With our Consultative, Comprehensive, Connected approach to dust, fume, and mist control, Donaldson is with you every step of the way.



Consultative: Donaldson completes a thorough review with you, listening to your operational needs and challenges.



Comprehensive: With that understanding, we will develop a solution using industry-leading products and technology.



Connected: You will have unrivaled access to global aftermarket specialists, collector performance monitoring, along with service and support professionals providing the answers you need.



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