

RoboVent[®]

Fusion Series Dust Collector



***Superior Dust Collection
for Every Industry***



Protect what matters most.

Effective dust control is critical to maintaining a manufacturing environment that is safe, healthy and productive. Count on RoboVent for innovative solutions to help you solve your toughest clean air challenges.

For more than 25 years, RoboVent's focus has been on the delivery of clean air and healthy environments in manufacturing facilities. This has earned us a leading position in the collection and filtering of airborne contaminants generated by metalworking and other industrial processes. Our expertise spans all types of industrial dusts and applications, including silica, wood, carbon, pharmaceutical and food processing dusts.

Our success is driven by a simple principle: Take care of customers by carefully listening to them to understand their needs. Doing so has allowed us to grow alongside the numerous Fortune 500 companies we count as loyal customers. The products you will find in the following pages have been engineered for flexibility, ease of use, consistent performance and unsurpassed quality.

We trust you will appreciate the efforts of our design and engineering staff, and find excellent value in the solutions provided by our sales and service groups. We are confident that we can provide effective solutions to meet the unique requirements of your manufacturing processes.

Breathe easy.



The background of the entire page is a photograph of two large, vertical, cylindrical industrial dust collectors. They are made of polished metal with horizontal ridges and are set against a bright blue sky with scattered white clouds. The sun is shining from the upper left, creating a strong lens flare effect on the leftmost unit. The units are mounted on a blue metal structure.

The answers you're looking for are here.

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RoboVent[®]
Ph: 1-888-ROBO-VENT

More Than 25 Years of Excellence

The RoboVent story begins in 1989, when we first opened our doors as a local dust collector distributor. Since then, we've grown to be an international leader in ventilation and filtration with offices throughout North America and now also in Europe. We're honored to have many of the world's most successful manufacturing companies on our growing list of satisfied customers.

We believe that the secret to success lies in one thing—commitment to the customer. We constantly ask ourselves one simple question: "What else can we do for our customers to make their businesses better?" It is this drive for continuous improvement that fuels our quest for innovation in air quality system design.

Over the years, we've continually rolled out new and more advanced products and technologies to make our customers' operations safer, healthier and more energy efficient. Through it all, our manufacturing customers have been a critical part of our growth.

In 2014, the same year we celebrated our 25th anniversary, RoboVent was honored to be included in the Inc. 5000 List of America's Fastest-Growing Private Companies. We give the credit to our team's passion for solving customer problems—a passion that continues to drive everyone at RoboVent today.

Our Clients

Some of the most innovative companies in the world have trusted their air quality to us. Our experience crosses a wide range of industries, including automotive, plastics, food and pharmaceuticals.

- | | |
|-----------------------|----------------------|
| • Alcoa Aluminum | • Kiswel Weld Wire |
| • Altec Industries | • Kubota |
| • Bobcat | • Lear Corporation |
| • Caterpillar | • Mercedes-Benz |
| • Exedy America | • Pilkington Glass |
| • General Electric | • Raybestos |
| • Gerdau Ameristeel | • Rheem |
| • Honda | • Stoughton Trailer |
| • Hendrickson Trailer | • Tenneco Automotive |
| • John Deere | • Toyota |
| • Kawasaki Tennessee | • Volvo |

Our Affiliations



Service and Ongoing Support

RoboVent 24-Hour Hotline: 888.ROBOVENT

The RoboVent 24-hour hotline is available seven days a week. We understand your requirement for production and stand ready to help at any time.

Maintenance Contracts Available

Sophisticated air-filtration equipment represents a costly investment in your plant and the health of your employees. Proper maintenance is critical to the performance of that investment. RoboVent preventative maintenance programs provide the regularly scheduled expert maintenance needed to properly maintain your air-filtration and dust-collection systems, and greatly reduce the risk of unexpected system breakdowns and production delays.



The Rock Solid RoboVent Guarantee.

"RoboVent systems are sized correctly for excellent filter life and effective smoke capture. This isn't always easy in a high demand business like dust collection. But, we promise every RoboVent customer will be satisfied."

Built for quality

No matter what system you choose, you can rest assured that it will come with RoboVent's quality guarantee. We build safety, energy savings and efficiency into every piece of equipment we make. Our clean air solutions are designed for the needs of today's manufacturers.



Lower operating costs: We're always looking for ways to reduce energy use, such as automated systems to ensure collectors run only when they need to. Additionally, our filters and equipment have been engineered to maximize filter life and reduce operating costs.



Superior safety and risk reduction: We have deep experience in controlling combustible dusts. Every piece of equipment we make is engineered to reduce the danger of fires or other problems that could put your workers and assets at risk.



Easy maintenance: Longer-lasting filters are just the start. Our equipment is built to reduce the maintenance burden on your staff. With eTell intelligent controls, you can move beyond preventative maintenance to truly predictive maintenance.

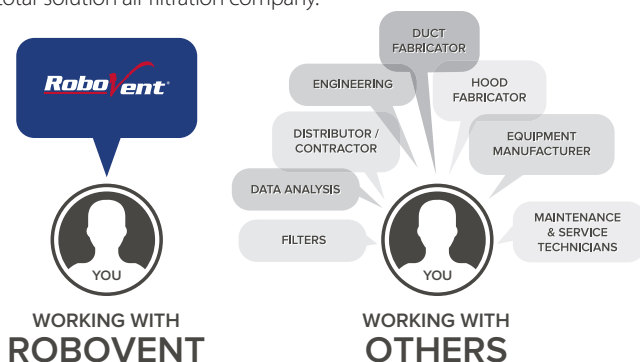
"We collect more dust with the RoboVent unit in a week than we did in a month with the competitor's unit."

— R.B., Chief Maintenance Technician, Stryker



One Supplier—Single-Source Responsibility

At RoboVent, we believe that personalized service is just as important as the product. That's why we take total project responsibility for the systems we deliver. Through a dedicated project team, we manage every step of a design-build project from concept through commissioning. Our value as a supplier-partner is best demonstrated through the successful delivery of hundreds of systems, many with demanding, fast-track schedules. We are your total-solution air filtration company.



Breakthrough Technology That Is Changing Air Quality in Manufacturing Plants

From the very beginning, we have been passionate about redefining clean air technology for the future. Over the years RoboVent has introduced a number of important breakthroughs in air cleaning technology, yet we recognized that this technology could be taken to the next level, to make products that are more capable, more powerful, but at the same time much simpler. We set out to bring all these things together and fuse them into one distinctly unique product platform.

All of these efforts combined to create a dust collector that has very low operating costs, is incredibly simple to use and remarkably easy to install—in any facility, and in any part of the world.

It was from this inspiration that the Fusion Series was born.

We started by re-examining dust collection from the ground up, using powerful CFD simulation software that allowed us to simulate the unseen airflow patterns in all parts of the equipment. Every part of the equipment was carefully reviewed and refined to maximize performance. By utilizing state-of-the-art fabrication technology and lean-manufacturing principles, along with an almost fanatical commitment to quality, we have carefully structured the entire manufacturing process all the way through its culmination: a rigorous 137-point quality-control checklist.

This rigorous process enabled us to create a collector that is built to last and minimize operational and maintenance costs. The standard features and options available—such as rugged construction, vertical filters, Dynamic Pulse, eTell Intelligent Controls, eDrive and RMO Technology—not only ensure the longevity of the collector itself, but provide energy savings and longer filter life!

eTell™ Intelligent Controls

Each Fusion Series unit comes standard with eTell Intelligent Controls, a revolutionary control system that learns your systems and routines, makes automatic adjustments to save energy and extend filter life and alerts you when maintenance is needed. With eTell, you can forget about your dust collector until it calls you.



SafeSensor™ Particulate Monitoring

SafeSensor is the Fusion Series advanced particulate-monitoring device that can detect leaks past the filters. If one should occur, SafeSensor will shut the equipment down and trigger an alarm.

Dynamic Pulse™ System

This patented system takes filter cleaning to an entirely new level. Far more than just a simple blast of compressed air, it has multiple valves working together in a computer-synchronized double-pulse sequence to virtually eliminate re-entrainment while propelling the dust down into the collection area.

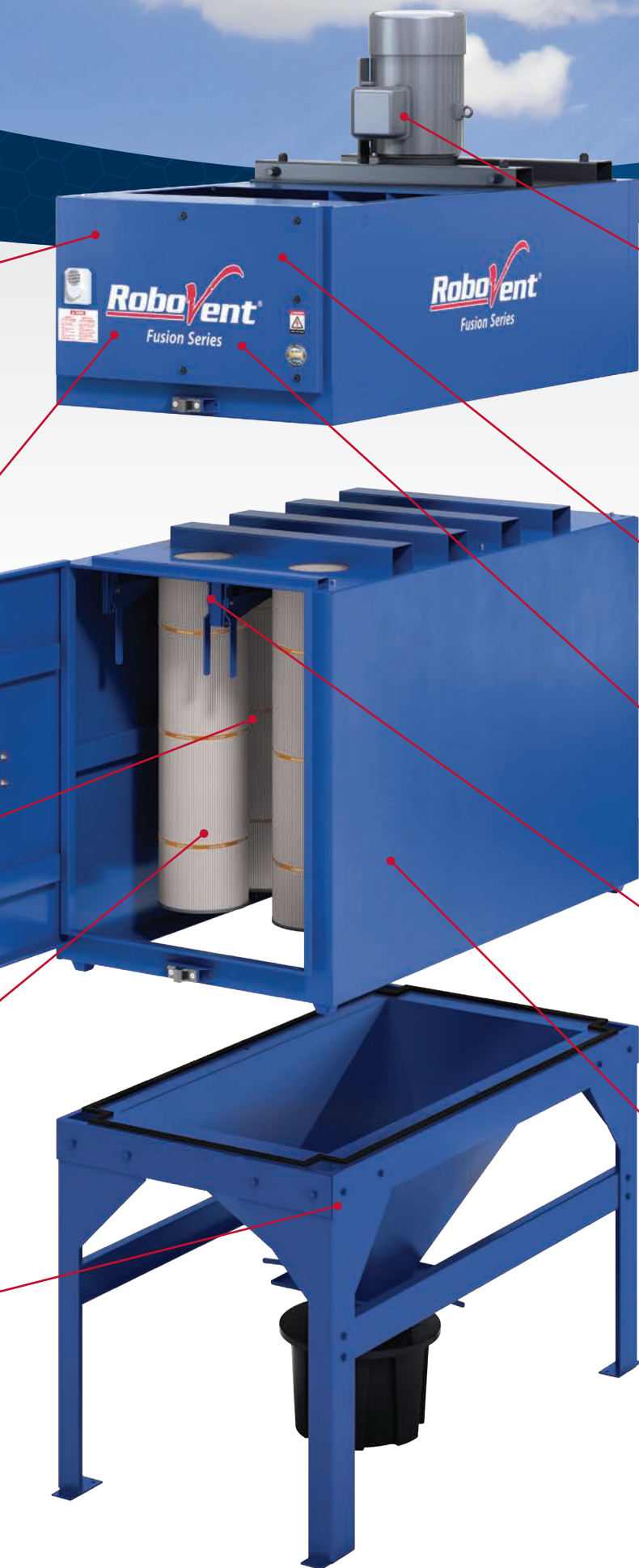
Endurex™ RMO Filters

RoboVent's Endurex RMO filters use Reinforced Media Optimization and a rigorous quality control system to guarantee performance. In addition to RMO Technology™ a wide selection of media is available including high performance cellulose, NanoFiber and PTFE, so that the filters can be tailored specifically to the application.

Integrated Base & Containment Unit

The collector base is constructed of 1/4-inch (6.35 mm) steel for strength and stability. The 20-gallon (76 L) particulate-containment drum locks in place with a quick-clamp mechanism. No tools are needed to empty it or to do regular maintenance. Configurations with a large-capacity 55-gallon (208 L) drum or a low-profile dust tray are standard options, and custom configurations are available upon request.





All-in-One

Fusion Series collectors are truly all-in-one. Much more than just the sum of all the individual components, these units are a seamless integration of all the components needed, bringing together what would typically be so complex into one incredibly simple package. The energy-efficient motor is directly coupled to the airfoil blower and prewired to the onboard controls. The unit is completely assembled and powered up, and then all operating systems are put through their paces before the Fusion Series collector is ready to leave the factory.

Supprex200™ Fire Suppression System (option)

This is a dual-stage system activated by smoke or heat. If smoke is detected, a fire damper closes, stopping all airflow and oxygen supply. If heat is detected, FM-200 gas is instantly deployed, suppressing the fire.

eDrive™ Automatic VFD (option)

The eDrive constantly monitors airflow, and automatically adjusts the motor RPM to compensate for filter loading. Energy peaks and valleys are evened out, and energy usage is cut by 20% to 30% while filter life is extended by as much as 30%.

Snap-Lock Filter Clamp

The double-rail clamping mechanism ensures an airtight seal for every filter. The gusseted support structure is welded to the 3/16-inch (.476 cm) reinforced tube sheet and provides over 200 pounds (91 kg) of compression force on the gasket. With this system, filter change-outs are fast, easy and require no tools. Maintenance staff will love how easy it is.

Rugged Cabinet Design

The Fusion Series features a rugged modular cabinet design that aligns with our signature protocol. The fully welded 10-gauge steel cabinet has a 3/16-inch (4.76 mm) tube sheet, 1/4-inch (6.35 mm) thick steel for the base and a Schedule 40 compressed-air pressure vessel. The entire cabinet and all structural components are backed by the 15-year warranty that is RoboVent's assurance of quality.



Helpful Hint

RoboVent Fusion Series collectors assemble in **60 minutes** on-site.*

* Collector assembly only. Does not include time for ducting, electrical connections, etc.

All-in-One Complete Packaged Product

RoboVent collectors come as a complete package. And they come completely assembled. With RoboVent you don't just get crates of components showing up at your dock; you get a finished product that has already been run through its paces and fully tested by our trained factory technicians.

Space Savings

Reduce the footprint of the system, and improve the aesthetics at the same time! Whether your ventilation equipment will be located inside or outside your plant, saving space can save you money, too.

Convenience

Save yourself the aggravation of sorting out the finger-pointing when things don't go together the way everyone hoped! RoboVent collectors have built-in blowers and built-in electrical controls, so there is minimal installation. Simply connect power and compressed air, and connect the touch-screen control board via a standard Ethernet cable (no wiring required). All components have been selected with low maintenance in mind, and are professionally assembled by our factory technicians.



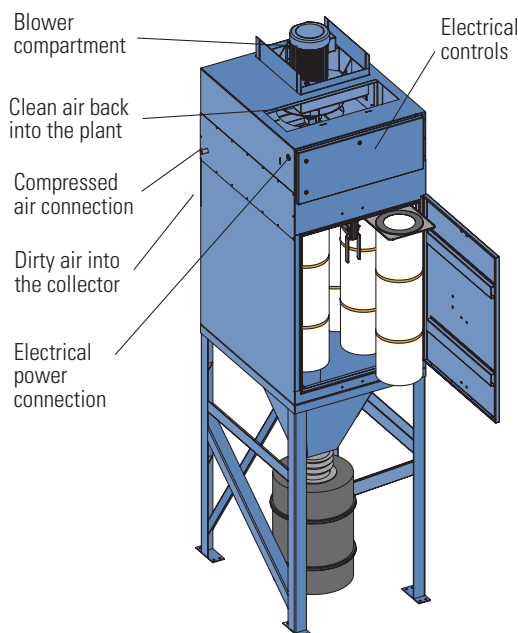
Reduced Installation Costs

You'll realize significant savings by purchasing a preassembled RoboVent collector. Be sure to add up all your costs, and you will find that thousands of dollars of costly on-site electrical wiring can be eliminated, plus a lot of extra ductwork and installation time.

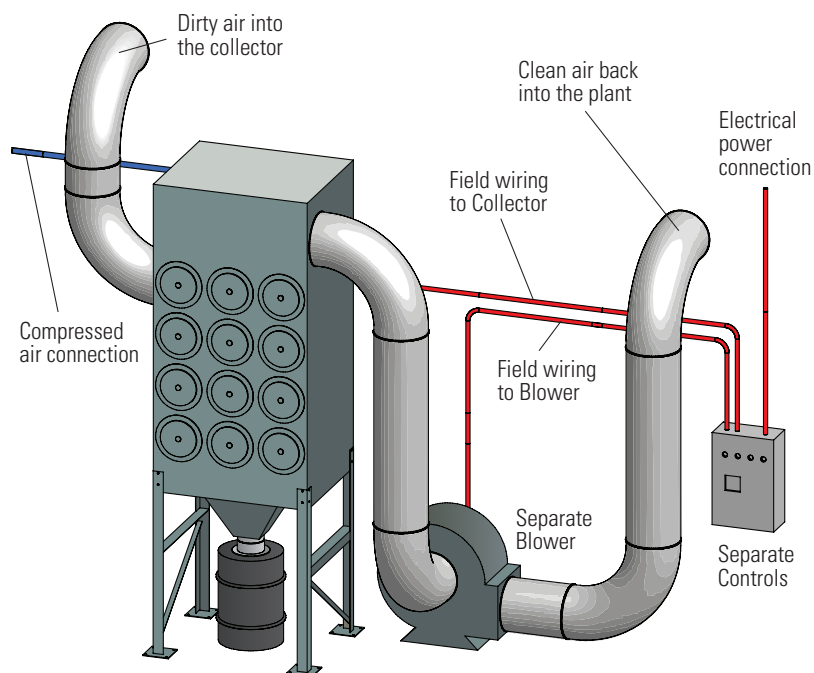
Quality Control

Every RoboVent collector has been carefully engineered and all components have been selected to make sure they will work together effectively and efficiently. Our trained factory people assemble and test RoboVent equipment every day. The blower, the pulse valves, the control panel and the wiring in between have all been checked to make sure that everything is working properly. By removing the guesswork, we can give you the best warranty in the industry with confidence: up to five years on all parts! The RoboVent assurance means your satisfaction is guaranteed.

The RoboVent Complete Package



The Conventional System



Vertical Filters vs. Horizontal Filters

Increase Filter Life with Proper Filter Orientation

The advantages of using vertical filters are significant. Vertical filters allow the dust to shed off the filter and fall directly down into the containment system, while the dirt from horizontal filters tends to shed off the bottom two-thirds only. The top third of a horizontal filter is lost in the first 10% to 20% of the filter's life. The life of the remaining two-thirds of the filter is drastically reduced due to the increase in air-to-cloth, resulting in an overall loss of 30% to 40% of the intended filter life. The only advantage in a horizontal-filter dust collector is the ease of manufacturing, as it is much simpler to build than a vertical-filter dust collector.

Extend Filter Life with RoboVent Vertical Filters

RoboVent Vertical Filter Orientation:



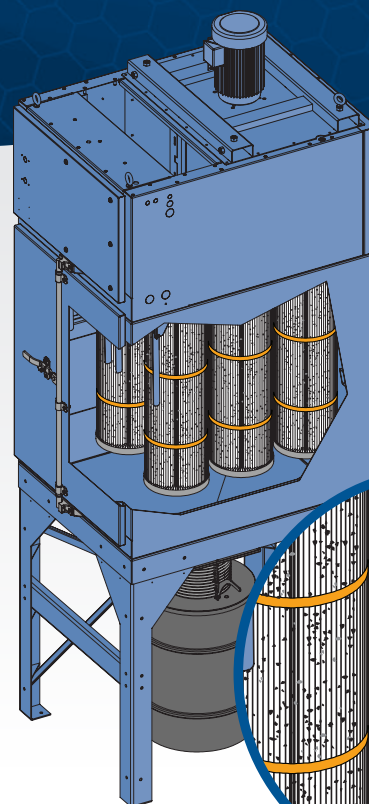
**33%
LONGER**

16 Months

Horizontal Filter Orientation:



12 Months



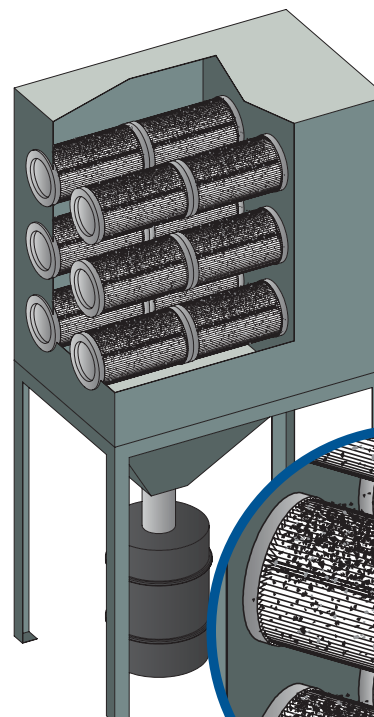
RoboVent Vertical Filters

Even dispersal of particulate over entire filter.



Helpful Hint

Save time! Vertical filters change out quicker thanks to large access doors and easy slide-in/slide-out square filter flanges.



Horizontal Filters (or slightly inclined)

Top third of filter lost due to inability to shed particulate.



RoboVent's vertical filter configuration allows for even particulate dispersal which maximizes filter life.

eTell™ Intelligent Controls: Advanced Air Quality Controls for Dust Collection Systems

With patent-pending eTell™ Intelligent Controls from RoboVent, they'll tell you what they need and when they need it. It's not about preventative maintenance—it's about *predictive* maintenance.

eTell eliminates costly and time-consuming maintenance routines and targets your efforts where they are truly needed. Just install the cloud-based software once, and let it tell you what needs to be done each month, or in real time. It will even tell you how to perform maintenance activities with easy-to-follow video instructions delivered right when you need them.

eTell is the *only* control system that is:

- **Predictive:** eTell can predict exactly how much life is left in your filters and when maintenance tasks should be performed based on your system use patterns.
- **Cloud-based:** Our cloud-based application gives you anywhere, anytime visibility for all of your equipment from multiple facilities on a single application.
- **Smart:** eTell learns your systems and processes and makes real-time adjustments to save energy and extend filter life.

The eTell Advantage

- Eliminate standard preventative maintenance routines and schedules.
- Cut maintenance costs by focusing only on what is actually needed.
- Access step-by-step video instructions so your team can perform maintenance activities without prior training.
- Track performance, energy use and maintenance needs for all of your dust collectors on your smart phone or tablet.
- Save money with smart software that learns your processes and adjusts energy use and self-cleaning cycles to reduce operational costs.

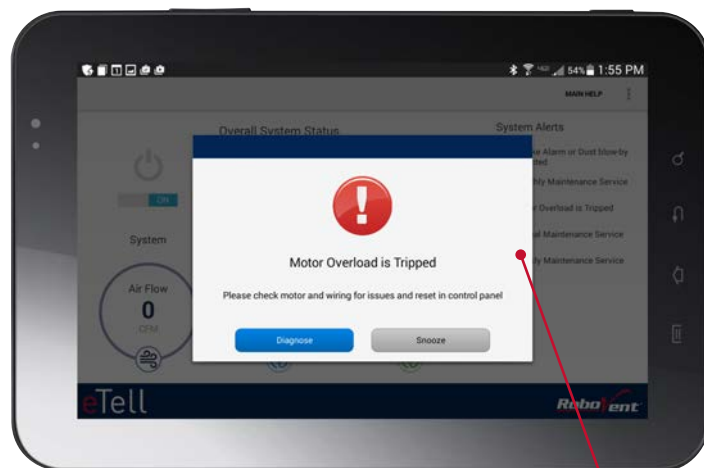


Manage Multiple Collectors

Now you can view and manage dust collectors across all of your facilities in one easy application. eTell lets you monitor the entire facility and see the alerts and alarms for all of your machines in one place.

Predictive Analytics

eTell uses advanced machine learning to analyze your systems and processes and make smart predictions on how future activities will impact filter life and maintenance needs. It uses this information to make simple, automatic adjustments that save energy and reduce costs. Easy-to-understand reports allow you to monitor energy use, filter life and other key metrics for each machine in your network.



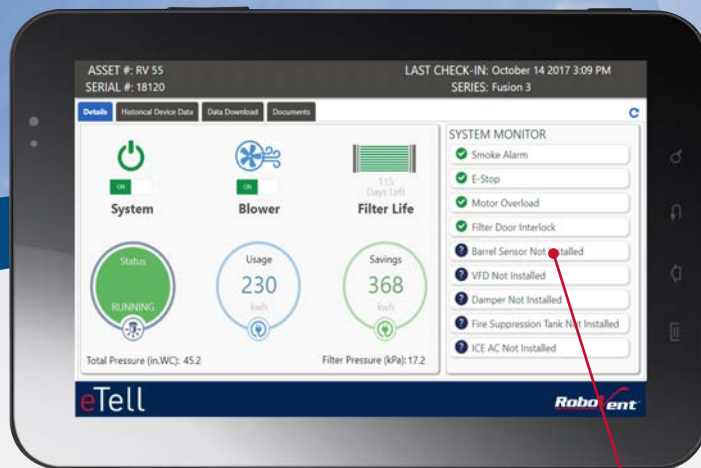
Reminders and Emergency Alerts

Get alerts and reminders right on your smartphone, tablet or computer. eTell will alert you if your dust collector needs immediate attention and send timely maintenance reminders. You can set your communication preferences so you can be reminded as often (or as seldom) as you like.



Maintenance Scheduling

Plant managers can easily monitor system performance and plan maintenance schedules based on each collector's needs. eTell lets you track updates, alerts and maintenance tasks for every collector in one place and generate a task list for each machine in your facility.



Collector Dashboard

Service technicians can pull up the eTell dashboard to get a full list of maintenance recommendations specific to each collector. The dashboard tells you exactly what needs to be done, when it should be completed and approximately how long each task should take. It even provides links to helpful video tutorials right at the point of use.

Video Tutorials and Help

The application comes pre-loaded with links to online support materials, helpful supportive materials and general video tutorials for your system, allowing you to self-diagnose and address any item.



Factory Support 24/7

Our staff will be alerted if a problem is not addressed immediately, so we can help you stay on top of any issues that should arise. Rather than taking the time to fix any issues yourself, simply call RoboVent to have one of our trained technicians service your equipment on site.



eTell Premium Services (optional)

With Premium services, you'll have all of the standard eTell features plus remotely turning equipment on/off and a more intuitive machine maintenance package.



Preferences

Customize your reports and alerts setting for your preferred frequency and level of detail. You can get detailed reports for in-depth performance analysis or just "set it and forget it" and let your dust collectors call you only when they need you. eTell lets you adjust system preferences for your workflow and management style.

RoboVent eTell Intelligent Controls are the standard control package on RoboVent collectors. The RoboVent eTell App is available on Android and iOS devices through the Google Play and Apple App Stores. The eTell Website is available when eTell Server is installed in your facility.

eDrive™ Automatic VFD

With the RoboVent eDrive, your collector's airflow is monitored and the motor's RPM is automatically adjusted to compensate for filter loading. As you can see in the graph below, a collector running without eDrive uses more energy in the beginning of the filter's life cycle than a collector with eDrive does.

Benefits of the RoboVent eDrive include:

- Less stress on filter media, which leads to longer filter life
- Decrease in energy usage by 20% to 40%
- Improved equipment performance
- Decreased filter costs
- Decreased maintenance costs

Using the RoboVent eDrive with your dust collector will compress and straighten energy peaks and valleys, cutting energy usage by approximately 40% and increasing filter life by as much as 30%.

The RoboVent eDrive Saves You Money by Decreasing Energy Use and Extending Filter Life

In the example below, this 10 HP unit would be using 7.457 KWs per hour of operation. This example shows that you would save 41% over the 18-month period. For filters in this example you have increased the filter life by 4 months, or 29% Filter Life Savings.

RoboVent vs. Make-Up Air

Are You Exhausting Your Profits?

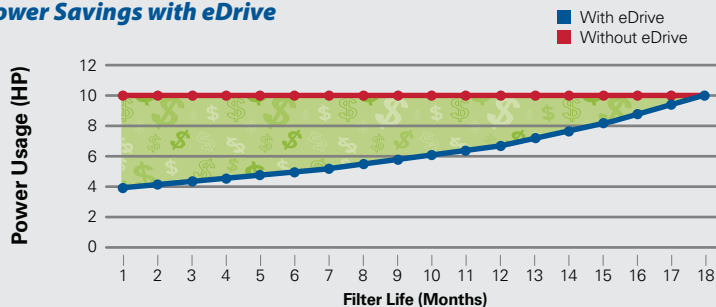
It's not every day you have the ability to reduce operating costs by 65%! We're mindful of efficiencies gained through clean air technology and we help our customers consistently achieve these savings. Heavier costs are avoided by combining multiple airflow processes into one, thus providing efficiencies during system operation. RoboVent systems simultaneously clean and re-circulate the air in your facility eliminating the need for additional sources of air or "make-up air" to be pumped into the facility. It also reduces the need for expensive exhaust systems. Our systems keep your working environment free of dust and other harmful particulates to help you run a much more efficient facility and reap the profits!



Helpful Hint

ROI on the eDrive varies from 8 to 14 months depending on energy costs.

Power Savings with eDrive



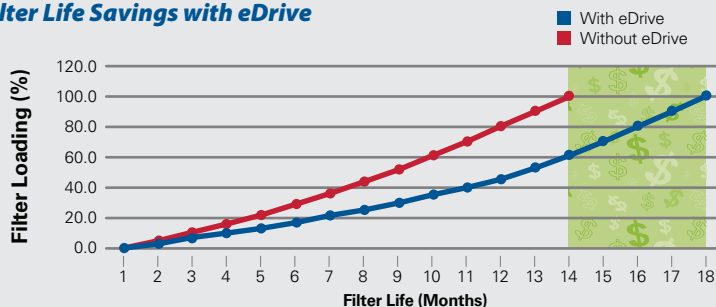
Results

Total KWHs without eDrive: 44,742 KWHs
Total KWHs with eDrive: 26,396 KWHs
Total KWH's Saved: 18,346 KWHs

Power Savings with RoboVent eDrive

41%
SAVINGS

Filter Life Savings with eDrive



Results

Filter Life without eDrive: 14 Months
Filter Life with eDrive: 18 Months
Filter Life Saved: 4 Months

Filter Life Savings with RoboVent eDrive

29%
SAVINGS

\$105,600
\$102,800

Annual Energy Cost Comparison (50,000 CFM)

\$36,500

RoboVent Operating Cost

Northern Climate Exhaust + Make-Up Operating Cost (Heat)

Southern Climate Exhaust + Make-Up Operating Cost (A/C)

Filters and Upkeep
Gas
Electric

Dynamic Pulse System

Extend Filter Life with Dynamic Pulse

Proprietary, computerized and efficient, the RoboVent Dynamic Pulse System uses a rapid-fire technique. The synchronized action of the pulsing mechanism virtually eliminates any re-entrainment of dust going from one filter to the next; instead, it causes the dust to fall into the containment tray or drum. The patent-pending Dynamic Pulse System ensures your filters are used to maximum capacity!

Saving filter life by shedding particulate effectively and eliminating re-entrainment, the synchronized Dynamic Pulse System has proven to be 1.5 times more effective than typical pulsing systems. As you can see in the charts below, we tested this system thoroughly. With the Dynamic Pulse System, 30% more dust was removed from the filters than with a typical pulsing system! Also, it had 82% effectiveness vs. 57% effectiveness with the standard pulsing system!

Perfectly Synchronized Pulsing Virtually Eliminates Re-entrainment of Dust.

RoboVent Dynamic Pulse System Testing

Particulate In

6.0
GALLONS
(22.7 L)

82%
EFFECTIVE

Particulate Out

4.9
GALLONS
(18.5 L)

Standard Pulse System Testing

Particulate In

6.0
GALLONS
(22.7 L)

57%
EFFECTIVE

Particulate Out

3.4
GALLONS
(12.9 L)

Controlled Variables			Dynamic Pulse System Recovered Volume	Standard Pulse System Recovered Volume
Particulate Volume	Number of Cycles			
Test 1	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.76	3.42
Test 2	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.90	2.88
Test 3	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.88	3.36
Test 4	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		5.06	3.56
Test 5	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.90	3.76
Test 6	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.76	3.68
Test 7	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		5.08	3.22
Test 8	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.92	3.62
Test 9	6 Gal. (22.7 L) (1) Cycle; 12 Cartridges		4.98	3.28
Average Recovered Volumes:			4.92	3.42

See the RoboVent Dynamic Pulse System in action by visiting www.robovent.com/videos

RoboVent Endurex™ Premium Cartridge Filters

Whether you have an ultra-fine dust, metal cutting fumes or an aggressive abrasive particulate, RoboVent has you covered.

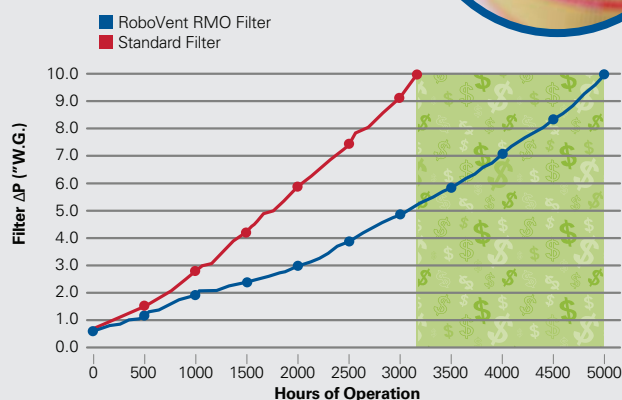
RoboVent's premium Endurex filter cartridges have been engineered to provide you the very best filtration protection for your plant and employees. Durable and proven, our filter media has been designed for outstanding performance in filtering fumes, smoke, dust, oil haze and other particulates/pollutants created during virtually any manufacturing process.

It's No Longer About Media Quantity. It's About Media Optimization.

Endurex RMO is truly the future in efficient filtration. By widening the pleat spacing in our proprietary filter media and ensuring that the pleats remain apart, we maximize the surface area of media available to dust and fume particles while maintaining the highest level of filtration efficiency. The result is a reduction in static pressure and a superior release of particulate. In short: longer filter life, using less media.



Extended Filter Life with Endurex™ RMO Filters



Results

Filter Life of Standard Filter: 3200 Hours
Filter Life of Endurex RMO Filter: 5000 Hours
Filter Life Extended: 1800 Hours

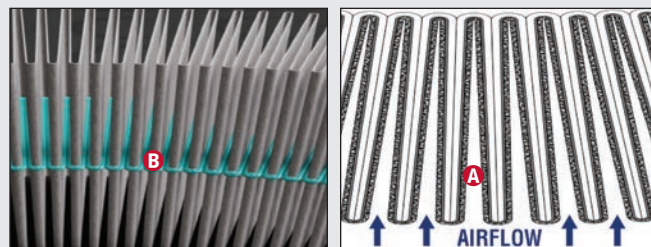
Extended Filter Life with Endurex RMO Filters

**56%
LONGER**



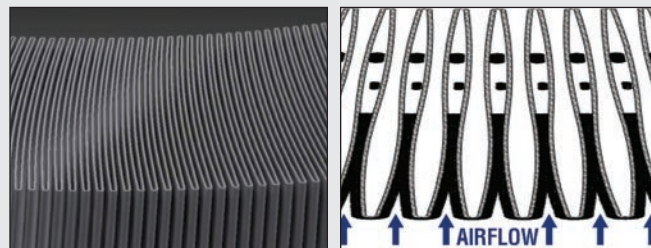
Endurex™ RMO: The Next Generation of Filters

Re-engineered to maximize efficiency while reducing static pressure, patent-pending Endurex Reinforced Media Optimization (RMO) brings filter technology into the 21st Century.



- A** RMO support keeps the filter pleats at optimum spacing, allowing for maximum loading on the media, and more effective pulse cleaning.
- B** RMO support ribs (shown in blue above) are continuous for the full length of the pleats ensuring no pleat collapse. RMO structures ensure media surface area is maximized, and the entire filter is used to its full potential.

Traditional Filter Design



In traditional filter design, the pleats are often pinched closed. The clean area seen on the inside of these pleats indicates that the dirty air never reached this media, resulting in less effective loading and ineffective pulse cleaning — and as a result, short filter life.

Filter Media Breakdown

Compare the various RoboVent Endurex filter medias and see which one is suited for your particular application.

			
Endurex M11 Economy MERV 11	Endurex D12 DefendEx™ MERV 12	Endurex A15 Nanofiber MERV 15	Endurex B16 PTFE MERV 16
<p>The Endurex M11 is RoboVent's Economy filter for applications where a low-cost filter is preferred. The M11 media is a fire retardant media that is good up to Merv 11 efficiency.</p> <ul style="list-style-type: none"> Standard cellulose/poly media Good filtration for minimum cost RMO technology Efficient for particulate down to 0.1 micron in size Flame retardant media 176 °F / 80 °C Max operating temperature 	<p>The Endurex D12 is a specially blended media for oil-laden particulate. The media is specifically formulated with an extremely durable phenolic resin system where each fiber is individually coated instead of a film formation.</p> <ul style="list-style-type: none"> Special formulated media with resin impregnated fibers for extreme durability against liquids/oils Good for oily smoke applications RMO technology Filtration efficiency down to 0.15 microns Non flame retardant media 210 °F / 99 °C Max operating temperature 	<p>The Endurex A15 is RoboVent's high quality cellulose/polyester blend that provides superior filtration efficiency and long life in welding applications. Every filter is fire retardant and uses Nanofiber technology to achieve long filter life.</p> <ul style="list-style-type: none"> Nanofiber membrane laminated to cellulose/poly substrate Long filter life Low differential pressure RMO technology High efficiency for particulate down to 0.1 micron in size Flame retardant media 149 °F / 65 °C Max operating temperature 	<p>A premium filter offering superior performance in both filter efficiency and longevity. The PTFE coating allows collected material to shed easily and quickly, extending the filter life and providing a very high level of filter efficiency. The Endurex B16 is rated at MERV 16, a level that approaches HEPA filtration standards.</p> <ul style="list-style-type: none"> PTFE membrane laminated to polyester spunbound substrate Excellent particulate release RMO technology Ultra high efficiency for very fine particulate 0.1 micron and below Non flame retardant media 200 °F / 93 °C Max operating temperature
Applications: <ul style="list-style-type: none"> Ambient Dust Blasting General Industrial Nuisance Dust Weld Smoke Other Light Loading Dust 	Applications: <ul style="list-style-type: none"> Agglomerative Dust Hygroscopic Moist Some Abrasive Dust Very Oily Weld Fume 	Applications: <ul style="list-style-type: none"> Air Blasting Fumed Silica General Industrial Metal Grinding Dust Metalizing Pharmaceutical Weld Smoke Wheel Blasting 	Applications: <ul style="list-style-type: none"> Chemical Processing Food Processing General Industrial High Production Wheel Blasting Laser and Plasma Cutting Pharmaceutical Polishing Weld Smoke



Deflagration System

Reducing Fire and Explosion Risks from Combustible Dusts

Combustible dust explosions can cause employee injuries, deaths and destruction of entire buildings. In a factory environment, a combination of combustible dusts, spark-generating process and confined spaces can easily become a recipe for disaster if appropriate risk mitigation steps are not taken.

What is a Combustible Dust?

The National Fire Protection Agency (NFPA) defines combustible dust as “any finely divided solid material that is 420 microns or smaller in diameter and presents a fire or explosion hazard when dispersed and ignited in air.” If such a dust is suspended in air in the right concentration, under certain conditions, it can become explosible. Left uncontrolled, such dusts may migrate from the point of production/release, subjecting other parts of the facility to fire and explosion hazards.

The RoboVent Deflagration System

Many RoboVent dust collectors, including Fusion and Plaser series collectors, can be easily configured with a deflagration system to reduce the risks associated with combustible dusts. Each component of the deflagration system is designed to minimize potential damage in case of a fire or explosion inside the collector and prevent flames from spreading back into the facility.

When designing a Deflagration System, RoboVent’s engineering team takes into careful consideration all aspects needed for NFPA combustible dust compliance. Our engineering process includes:

- Explosive testing in accordance with ASTM standards to determine if your dust is combustible.
- PHA (Process Hazard Analysis), sometimes known as risk assessment, is conducted for any dust with a KST value of greater than 200 bar-m/sec.
- RoboVent’s engineering team incorporates explosion relief panels and other devices into our dust control systems to help you comply with the latest NFPA standards.

Meeting Safety Regulations

NFPA has issued a number of standards related to prevention of fire and dust explosions that manufacturers producing combustible dusts must follow. NFPA Standard 652, the Standard on Fundamentals of Combustible Dusts, provides an overview of required safety and risk mitigation practices and directs you to other resources and standards for explosion venting and/or explosion prevention.



How Combustible Dust Explosions Happen

Combustible dust explosions are relatively rare, but when they happen, they can be catastrophic.

According to the Occupational Safety & Health Administration (OSHA), five elements are needed for a combustible dust explosion:

- Combustible dust (fuel)
- Ignition source (heat)
- Oxygen in the air (oxidizer)
- Dispersion of dust particles in sufficient quantity and concentration
- Confinement of the dust cloud



Source: OSHA

If the quantity of dust in suspension in the air that is moving through a dust collection system is above what is called the minimum explosive concentration (MEC), then the suspension can potentially explode in the presence of an ignition source (e.g., a welding gun).

Unlike most gas or vapor explosions, the major damage of a dust explosion often results from the secondary event, which happens when a primary explosion within a piece of equipment or local to an ignition source spreads to remote areas due to involvement of dust accumulations outside of the equipment. The initial explosion can dislodge more accumulated dust into the air or damage a dust containment system, again releasing more dust.

Delta3™ Spark Arrestance System

Our proprietary spark arrestance system prevents sparks from entering the dust collector where they could ignite filter media or combustible dusts. Delta3 works with your deflagration system for added fire and explosion safety. See pages 18 for details.

Isolation Valve

The isolation valve acts like a “check valve” to prevent the deflagration (pressure wave) from propagating through the ductwork back into the facility.

Explosion Vent

If an explosion occurs inside the collector, the explosion vent will rupture to release excess pressure. This allows the energy from the explosion to be safely directed away from the building to minimize structural damage and injuries.

Rotary Airlock

The purpose of the rotary airlock is to prevent the deflagration (pressure wave) from propagating out the hopper in the event of an explosion, protecting personnel and property.

Fire Prevention System

Is Your Manufacturing Operation A Fire Hazard?

According to the Bureau of Labor Statistics, fires and explosions account for about 3% of workplace fatalities. Because sparks, flames and combustible dust are an inherent part of many industrial processes, companies must have a plan in place to prevent and mitigate the effects of fire and explosions. RoboVent focuses on stopping fires before they start with its advanced Delta3 Technology.

Delta3™ SparkOut™ Technology

The key to fire prevention is to stop sparks before they enter the dust collector. Delta3 is based on an advanced patent-pending technology that represents a major breakthrough in spark arrestance. It uses centrifugal action to drive sparks and embers against the outer wall of the device, stripping off the thermal envelope that surrounds them so that they are rapidly cooled and extinguished. At the same time, high air velocities are maintained on the inside surfaces, so the unit is constantly cleaning itself and maintains superior performance with low pressure drop.

Available as an in-line or collector-mounted option, the RoboVent Delta3 provides spark arrestance with very little maintenance required.



Helpful Hint

Under extensive lab testing, the Delta3 proved to be more effective than leading competitors at preventing sparks from entering the filter cabinet. Visit www.robovent.com/videos for a video demonstration.



Protect Against Fires with the RoboVent SparkOut™ System

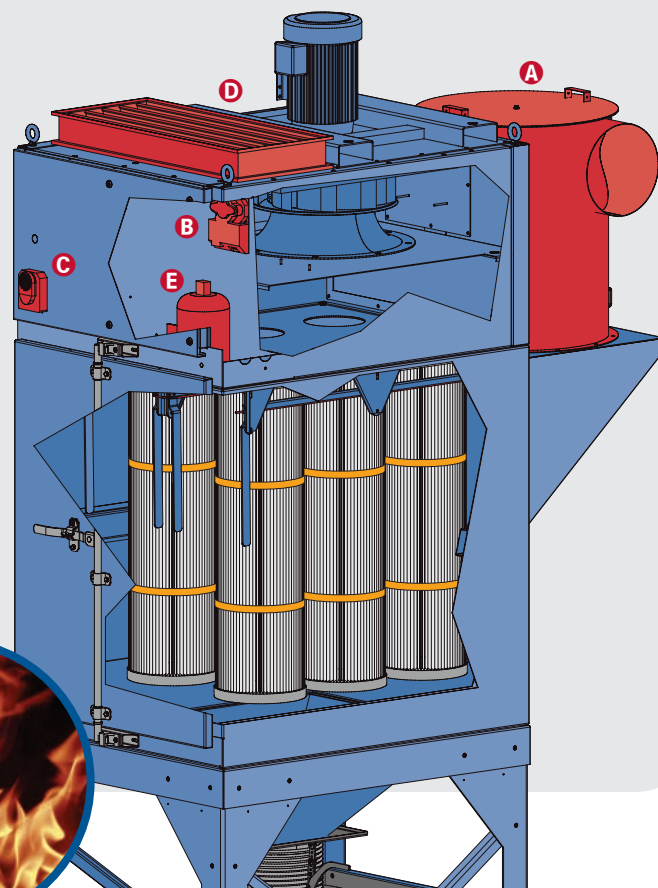
STEP 1: Delta3™ — The Delta3 SparkOut System **A** quickly extinguishes sparks created through the welding process. The exclusive engineered design represents many years of extensive field testing and performance under heavy manufacturing conditions.

STEP 2: SafeSensor™ — The SafeSensor **B** particulate-monitoring device detects leaks past your filters, either smoke or dust. If a leak occurs, the system shuts the equipment down and sets off an alarm **C**.

STEP 3: Supprex-200 Damper™ — The Supprex-200 Damper System **D** closes when smoke is detected, stopping the oxygen from feeding the fire. If a fire is present, it typically is contained to one filter and the Supprex-200 does not disperse.

STEP 4: Supprex-200 Fire Suppression™ — If and when heat is detected, FM-200 gas is released at the location of the fire. With the Supprex-200 System **E** there is little or minimal cleanup after a fire.

- A** Delta3 SparkOut
- B** SafeSensor Monitor
- C** SafeSensor Horn Alarm & Strobe Light
- D** Supprex-200 Damper
- E** Supprex-200 Fire Suppression





RoboVent ICE™ (Integrated Cooling Equipment)

Get Clean, Cool Air with RoboVent ICE™

The patent-pending RoboVent ICE system goes beyond traditional HVAC by integrating dust collection and air conditioning. Combining the two systems produces major benefits for your workers and facility — all of which boosts profitability for your business. Available in both ductless and ducted options, RoboVent ICE is the perfect solution to keep your plant clean and cool.



"We're thrilled about the many positive effects the new RoboVent system is having on our workers, facility and production. Production is more efficient, and the air in the facility is even safer and cleaner. Smoke and dust are virtually eliminated, and employees on the floor feel better about coming to work."

— B.W., President, Stoughton Trailers

- Create a Healthier Working Environment
- Attract and Retain Top Talent
- Reduce Maintenance on Equipment
- Increase Your Bottom Line by Minimizing Productivity Loss
- Prevent Worker Heat Stress and Dehydration

Summer Heat Burns \$\$\$

Hot weather is not only uncomfortable, it can also be expensive. As temperatures go up, productivity goes down. Let RoboVent ICE protect your profits by helping you beat the heat of summer and prevent productivity loss.



Without RoboVent ICE

Temperature **85°F (29°C)**
Productivity Loss **8.8%**



Do the Math for 30 Workers:

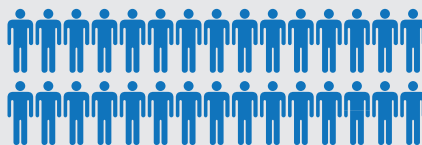
\$1.41 Lost Productivity Per Hour Per Person
x 30 Workers
x 40 Hours Per Week (Single Shift)
x 17 Summer Weeks (May - August)

= \$28,764 Productivity Loss Per Summer
 (\$958.80 Per Worker Per Summer)



With RoboVent ICE

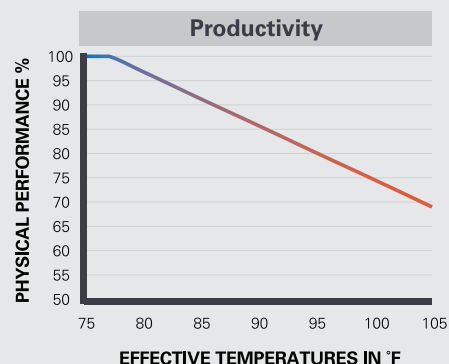
Temperature **75°F (24°C)**
Productivity Loss **0.0%**



\$0 Productivity Loss Per Summer

RoboVent ICE can keep your plant a comfortable 75°F (24°C) with low humidity. The result is no loss in productivity from the heat, a decrease in sick days and an increase in morale. The choice is clear —

Do the Math.



Temperature	Productivity Loss
77°F (25°C)	0.0%
80°F (27°C)	-3.2%
85°F (29°C)	-8.8%
90°F (32°C)	-14.3%
95°F (35°C)	-19.9%
100°F (38°C)	-25.4%
105°F (41°C)	-31.0%

Source: Seppänen, O., Fisk, W. J. and Lei, Q. H. (2006)

Equipment Inlets & Dust Containment

The Fusion Series can be configured to meet your specific need!



Dust Tray

Perfect when height is a concern, the easy-to-use dust tray slides out to allow for dust removal.



20 Gallon (76 L) Drum

Captures up to twice the dust of the standard dust tray while reducing maintenance time. Suggested for medium loading applications.



55 Gallon (208 L) Drum

Captures up to three times the dust of the standard dust tray while reducing your maintenance time. Suggested for heavy loading applications.



Standard Inlet

Designed for direct-to-duct connections that do not have a spark arrestor, or applications where sparks are not an issue.



Vortex Inlet

Maximizes air circulation throughout your weld environment without sacrificing space. Suggested for use with our unique Vortex Louver system.



Delta3 Inlet

Ideal for limited space and high spark yield environments, this proprietary design uses centrifugal force to create a safer work environment and increased productivity all while reducing maintenance costs.

Other Configurations & Options



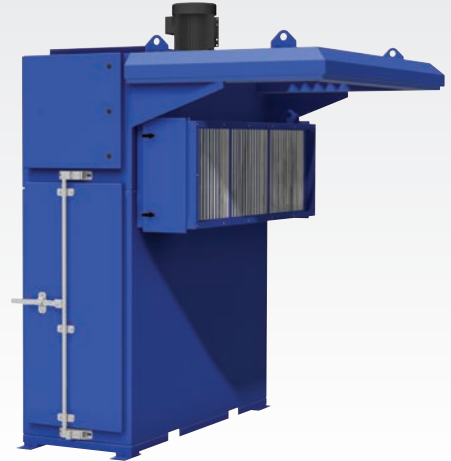
Silencer

The silencer option reduces the overall noise level of the collector and is available on all Fusion Series collectors.



Vortex Package

The Vortex Package is a stand-alone unit built for cleaning ambient air with adjustable nozzles, creating optimal airflow. Package consists of Vortex Louver, as shown above, mounted to the SparkOut® intake chassis.



WeldPro Package

The WeldPro Package is a stand-alone workstation that includes a SparkOut Intake and a Flexan Hood for capturing smoke from a variety of applications.

Recommended Upgrades and Options

- Abrasive-Inlet Package
- AutoSaver Sensor
- Barrel Level Sensor
- eDrive Automatic VFD
- eTell Intelligent Controls
- eQ: Air Quality Monitoring
- Explosion Panels*
- Isolation Valve*
- HEPA After-Filter
- Hopper Gate
- Noise-Reduction Packages
- On-Board Air Compressor
- Outdoor-Prep Packages
- Rotary Air-Lock*
- Service Platform with Ladder
- Sprinkler Head Port
- Supprex-200 Fire-Suppression System

* See pages 16-17 for more information on **Combustible Dust Hazards in Dust Collection** and our **Deflagration System**.

Service and Ongoing Support

RoboVent 24 Hour Hotline: 888.ROBOVENT

The RoboVent 24-hour hotline is available seven days a week. We understand your requirement for production and stand ready to help at any time.

Maintenance Contracts Available

Sophisticated air-filtration equipment represents a costly investment in your plant and the health of your employees. Proper maintenance is critical to the performance of that investment. RoboVent preventative maintenance programs provide the regularly scheduled expert maintenance needed to properly maintain your air-filtration and dust-collection systems, and greatly reduce the risk of unexpected system breakdowns and production delays.



Best Warranty in the Industry

RoboVent Fusion Series collectors come with the Best Warranty in the Industry: **15 Years on the Cabinet and up to 5 Years on Components.**

See Warranty Document for further details.

Your Partner in Dust Control

No matter what kind of dust is produced in your facility, RoboVent can help. The Fusion Series has proven solutions for all types of industrial dusts, from silica and fiberglass to carbon black and talc.

The Benefits of Clean Air

Controlling dust isn't just a regulatory requirement—it's good business. Besides safeguarding the health of your employees, improving air quality leads to increased worker productivity and other benefits, as well. Did you know:

- A study examining the impact of indoor air pollution on worker productivity in the United States found a 4.2% improvement in productivity when indoor air contaminants were reduced.
- Poor indoor air quality is estimated to cause six additional lost workdays per year for every ten employees.
- The Occupational Safety and Health Administration (OSHA) has estimated the annual nationwide cost savings related to increased air quality could be \$15 billion.
- Better dust control results in efficiency and productivity improvements, cost reductions in operations and maintenance and reduced incidence of property damage.
- Clean environments lead to better recruiting, retention and worker satisfaction, especially among younger workers.

Of course, you'll want to make sure you are meeting all OSHA regulations for dust control. However, many manufacturers are going further in order to meet other business goals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published guidelines for control of dozens of different kinds of dusts, which are based on the latest science and often more stringent than OSHA regulations. No matter what your dust control goals are, the Fusion Series can help you get there.

Our Specialties



Metalworking Dust

Cutting, grinding or polishing metals produces large amounts of dust containing metal oxides and other substances that can be toxic if inhaled. Depending on the metals and processes you are using, workers can be exposed to magnesium, manganese, nickel, lead, hexavalent chromium and beryllium. When these substances make their way into the lungs, they increase the risk of lung disease, cancer, kidney problems and other serious illnesses. The Fusion Series can be used for a wide variety of metalworking dust types, from heavy particulates caused by cutting and grinding to fine metallic powders and fumes from thermal applications.

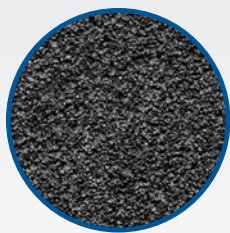


Silica Dust

OSHA recently cut their permissible exposure limits for silica in half, to just 50 $\mu\text{g}/\text{m}^3$ as an 8-hour TWA. Will you be ready? The Fusion Series is perfect for facilities involved in cutting or grinding of bricks, tiles, masonry or concrete, as well as glass and tile manufacturers, processes using abrasive sandblasting, and other applications that expose workers to silica dust. We can help you meet the new standards and reduce the risks of lung cancer, silicosis and other chronic respiratory diseases for your workers.



RoboVent rooftop units for a plastic cutting process.



Carbon Black

Carbon black, widely used in rubber applications and in pigments for plastics, paints and inks, appears in its refined states as an odorless black powder notable for its high surface area. It can cause severe irritation to the eyes, skin, nose, throat and lungs, in addition to severe cough, headache, chest pain and fatigue. High concentrations of carbon black dust create a very unpleasant environment for employees and accumulate on surfaces throughout the factory. It also accumulates in lungs, where it may be linked to cancer. The Fusion Series can reduce carbon black dust levels to well below OSHA regulations and keep your factory environment clean, pleasant and healthy.



Fiberglass

Fiberglass produces significant amounts of dust when it is sanded, ground or cut. Workers who are exposed to fiberglass dust during industrial processes can develop irritation of the skin, eyes and respiratory system. Smaller fibers may be able to make their way deep into the lungs, where their long-term health effects are unknown. Companies working with fiberglass need powerful capture and filtration to collect fiberglass dust particles of various sizes and keep them from accumulating in the air and on factory surfaces. The Fusion Series is well suited to handle fiberglass dust produced by a variety of processes.



Talc

Fine, soft talc powder finds its way into hundreds of products and processes, from dry lubricants for industrial applications to cosmetics, pharmaceuticals, paper, ceramics and even foods. While it is not currently classified as a carcinogen, the small size of talc grains allows them to be inhaled deep into the lungs where they can cause talc pneumoconiosis or make their way into other body systems. For this reason, it is important to keep talc exposure for workers low. The Fusion Series can easily handle extra-fine talc grains and ensure that your manufacturing environment meets OSHA regulations.



RoboVent unit collecting dust from a fiberglass sanding operation.



RoboVent unit collecting dust from a weld wire manufacturing facility.



Pigments and Dye Powders

Many pigments contain metal compounds that give them brilliant colors. Unfortunately, some of those metals are quite toxic. In industrial settings, pigment dust can become a serious problem for workers' health. Metals that find their way

into pigments and dyes include cadmium, cobalt, zinc oxide and hexavalent chromium—each with its own health risks and permissible exposure limits. The Fusion Series can keep you within regulations for even the most toxic elements in pigments and dyes and ensure that your environment remains safe, healthy and clean.



Pharmaceutical

Pharmaceutical manufacturers must maintain dust-free environments to avoid cross contamination of medications as well as potentially dangerous exposures to pharmaceuticals for workers. Without proper dust control, workers can be

exposed to anesthetics, hormones, anti-viral drugs and more, which can lead to skin rashes, birth defects, organ toxicity, fertility problems or worse. The Fusion Series can help you ensure that your facility meets Current Good Manufacturing Practice (CGMP) for cleanliness, worker safety and product purity.



RoboVent collector used to remove dust from an industrial sandblasting application.



Food Processing

Food processing can also result in the creation of dangerous dusts. It's easy to imagine these dusts having negative impact on worker respiration, but food processing dusts can also be highly explosive. Dust from flours and starches can also be very light and fine,

making it challenging to capture. The Fusion Series easily captures and contains fine combustible dusts generated in food processing and packaging to protect your workers, reduce the risk of fires and explosions and meet manufacturing standards for cleanliness and product purity.



Abrasive Blasting

Abrasive-blasting applications range from wheel blasters and air blasters to cabinet blasters. Because each utilizes a variety of abrasive-blasting medias — including sand, garnet, steel, plastic and shot — each application must be reviewed before an

equipment recommendation can be made. Special consideration is required for silica-sand blasting and aluminum blasting, and we have a range of products suitable for these applications.



Plastics

Like in fiberglass operations, RoboVent units can handle plastic dust as well. Combined with the RoboVent Fusion collector and the Dynamic Pulse mechanism, the Endurex RMO Filter Technology makes it simple to capture dust from plastic cutting operations. Consider your plastic dust issues solved!



Wood & Paper

Many wood-dust and paper-dust applications involve the collection of stringy fibrous material that can cause bridging between filters in horizontal-cartridge collectors. When paired with the Dynamic Pulse System, the vertical filter design of RoboVent Fusion Series collectors works particularly well in high-loading applications, lengthening filter life and lowering maintenance costs. We offer specialized filter medias to ensure proper discharge of wood and paper dust along with shavings from the cartridges.



Recycling

No matter the material you are recycling — aluminum, plastic, paper, etc. — RoboVent Fusion Series dust collectors can handle it. Using cyclone separators and drop boxes, they make it possible to collect the dust as a recyclable material, increasing the efficiency of your plant.



Aluminum recycling operations benefit from the use of a RoboVent collector.

Other Applications:

- Aluminum
- Aluminum Blasting
- Aluminum Oxide
- Blast Rooms
- Brick Making
- Cast Iron Grinding
- Chemical Processing
- EAW Spraying
- Fine FRP Dust
- Fine Powders
- Flame Spray
- Fumed Silicon
- Glass Making
- Iron Casting Sand
- Iron and Chrome
- Laser Cutting Fumes
- Light Carbon Dust
- Metal Flame Spray
- Mica
- Nickel Dust
- PVC Grinding
- Shot Blast Materials
- Styrene Dust
- Tile Manufacturing
- Titanium Dioxide
- Tobacco Dust
- Toner
- Welding Fumes
- Wheel Blasting



ClientCare Service Program:

Service options for every need and budget

Whether you want us to handle all monthly preventative maintenance for you, or simply need regular equipment checks to make sure everything is in top condition, we can help you find a service package that meets your needs.

We offer three levels of ClientCare service. Our service packages let you leverage our expertise so you can reduce the burden on your maintenance staff, control your maintenance budget and stay focused on your core business.

"RoboVent ClientCare helps us budget better. We can predict our costs and proactively plan for maintenance downtime. RoboVent ClientCare has kept our equipment running at 100% outside of scheduled maintenance."

—Facilities Engineer, equipment manufacturing facility



Helpful Hint

Sign up for the RoboVent CompleteCare program, and get a full lifetime warranty on your RoboVent equipment for as long as the program is in place!



CompleteCare™ Maintenance Program

With the CompleteCare™ Maintenance Program, you can leave everything to us. Depending on your equipment needs and usage, our technicians will come in monthly, bi-monthly or quarterly to change filters, conduct routine maintenance, and troubleshoot emerging issues. CompleteCare is a comprehensive maintenance package designed to give you peace of mind, extend the life of your equipment and reduce the maintenance burden on your staff.

- One flat rate per service call regardless of frequency to help you budget better (filters charged separately)
- Lifetime Warranty included for the life of the contract on all parts and labor (excluding filters)
- Full electronic service report provided within 48 hours of your service so you can monitor equipment issues and budgets
- Additional visits (inspection, trouble shooting or repair) available at additional cost

Sample CompleteCare™ Checklist:

- Stop blower, reset digital read-out to zero, restart blower, record Delta-P value
- Stop blower, set controller to rapid pulse, pulse down for 30-60 minutes
- Start blower, record new Delta-P value
- Inspect system
- Check for blower / motor vibrations
- Check pulse valves
- Check controller function
- Replace parts as necessary
- Record estimated volume of collected dust particulate
- Empty drum/tray (as needed)
- Clean spark arrestance baffle filters (if applicable)
- Change cartridge filters as required
- Record filter pressure and filter life
- Visual inspection of ductwork





Equipment Certification Program

Our Equipment Certification Program, offered on a quarterly, bi-annual or annual basis, will help you extend the life of your equipment and protect the safety of your workers with regular inspections by certified RoboVent technicians. We'll identify any emerging issues and make proactive maintenance or repair recommendations to prevent unexpected downtime and ensure that your equipment is running at top efficiency.

- 50-point check of your entire system
- Detailed report provided within 72 hours of inspection
- Client review meeting within two weeks of the inspection to address concerns and opportunities
- Recommended inspection intervals:
 - Equipment less than 3 years old: annual
 - Equipment between 3 & 8 years old: bi-annual
 - Equipment more than 8 years old: quarterly
- Warranty is not extended nor offered through this program



ClientCare Service Quality Check Program

If you would rather conduct your preventative maintenance in-house, our ClientCare Service Quality Check Program will ensure that your maintenance team is performing world-class PM service that meets all RoboVent standards. Our technicians can come in monthly, quarterly or bi-annually to review service records and make recommendations for your maintenance staff. We'll make sure that maintenance staff are conducting the right services on the right schedule to maintain your equipment in top condition and help them troubleshoot any emerging issues they have identified.

- Detailed report provided within 72 hours of inspection
- Warranty is not extended nor offered through this program

"It's more cost-effective for me to let RoboVent take care of their equipment. They know what it needs and they can do it faster. My in-house talent is better spent elsewhere."

—Project Engineer, automotive parts manufacturing facility

Three Levels of Service

Choose the level of service that's right for you.

	CompleteCare™ Maintenance Program	Equipment Certification Program	ClientCare Service Quality Check Program
Service/Inspection Report	★	★	★
Service Recommendations	★	★	★
50-Point System Check	★	★	—
Client Review Meeting	★	★	—
Full Warranty	★	—	—
Change Filters	★	—	—
Perform Preventative Maintenance	★	—	—
Review of Service Records	★	—	—
Troubleshooting	★	—	—
RoboVent Takes Full Responsibility	★	—	—

*Manual
Welding Fume
Extraction*



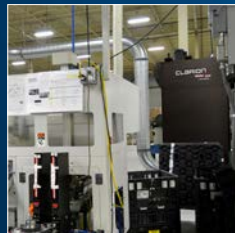
*Integrated
Cooling
Equipment*



*Robotic
Welding Fume
Collection*



*Maintenance
Programs*



*Oil Mist
Extraction*



*Full-Plant /
Ambient Air
Cleaning Systems*

*Dust Collection
Systems*



*Mobile Dust
Collectors*



*Laser & Plasma
Cutting Fume
Collection*



*Aftermarket
Replacement
Filters*



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