

A photograph of an industrial facility, likely a power plant or manufacturing plant, featuring large white pipes and a tall cylindrical dust collector. The scene is set against a clear sky with some greenery in the foreground.

## Optimize Dust Filtration Efficiency, Reduce Operation Cost

### Dust Collector Systems

Proven automation solutions and local expertise to help you overcome your toughest challenges.





Users of dust collectors are demanding greater energy efficiency, lower maintenance costs and greater availability.

## Need to develop cost-effective systems that are easier to maintain and offer lower operating costs?

To remain competitive, you must develop dust collector systems that are not only cost-effective and reduce emissions, but also help to minimize operating costs for the customer, through less maintenance, greater energy efficiency and increased availability. Components that offer greater reliability and longer lifecycles must be sourced, along with automation technology that provides the user with greater insight into system performance and health. Implementing new technologies can impact time to market. Ease of installation, necessary ratings, certifications and global support must all therefore be considered.

“For a typical industrial facility, approximately 10% of the electricity consumed is for generating compressed air. For some facilities, compressed air generation may account for 30% or more of the electricity consumed.”  
– US Department of Energy



“Companies reported the average cost of unplanned downtime due to a dust collector failure is \$3,300 per hour.”  
– Plant Engineer dust collection survey



“Fast innovators have long demonstrated that shortening innovation and product development cycles and reducing time to market can be a powerful source of competitive advantage.”  
– Boston Consulting Group





# Increase the reliability and efficiency of your dust collector system

Dust collectors are essential to ensuring a clean and safe working environment through air filtration. With Emerson's control systems, condition monitoring, ultra-reliable valves, switches, actuators and components, your dust collectors will deliver high performance, but need less maintenance, consume less energy, and create lower operational costs for the user.



## Increase dust collector performance and efficiency for lower operating costs

- Get higher peak pressures and optimized pulse cleaning
- Increase energy efficiency and reduce compressed air usage
- Detect leaks that affect performance and efficiency

Emerson's dust pulse technology automatically maintains differential pressure extremely close to the setpoint while minimizing pulsing. This reduces compressed air use by 15–40% over standard on-demand cleaning and up to 90% over continuous cleaning.



## Increase dust collector reliability to provide greater availability for your customer

- Improve bag and filter life and extend service intervals
- Prevent failures caused by extreme operating environments
- Prevent unexpected downtime and improve maintenance scheduling

“Using Emerson's DPT monitor we could immediately identify the location of a developing leak, which meant we were shut down for only a few minutes.”  
– Plant Manager, Chemical Processing Company



## Simplify collector system design and manufacturing process

- Optimize system design using integrated solutions
- Streamline approvals and industry certification process
- Simplify procurement by sourcing components from a single supplier with global support

“A modified ASCO Series 353 valve met our requirements for flying leads across multiple turn-key control panels for dust collector systems. Valve and lead wires have a single part number and ship in one box, making ordering and inventory management easy.”  
– Engineering Director, control panel manufacturer

# With Emerson, you can overcome your dust collector challenges

## Monitoring

- Monitor particles to identify leaks. [Monitoring ▶ P8](#)

## Diagnostics

- Reduce unexpected downtime to increase availability. [Diagnostics ▶ P10](#)
- Prevent excessive emissions by identifying leaks earlier. [Diagnostics ▶ P10](#)

## Control systems

- Optimize filter performance and uptime. [Control ▶ P10](#)

## Pneumatic control

- Precisely and reliably control dampers. [Pneumatics ▶ P12](#)

## Cleaning

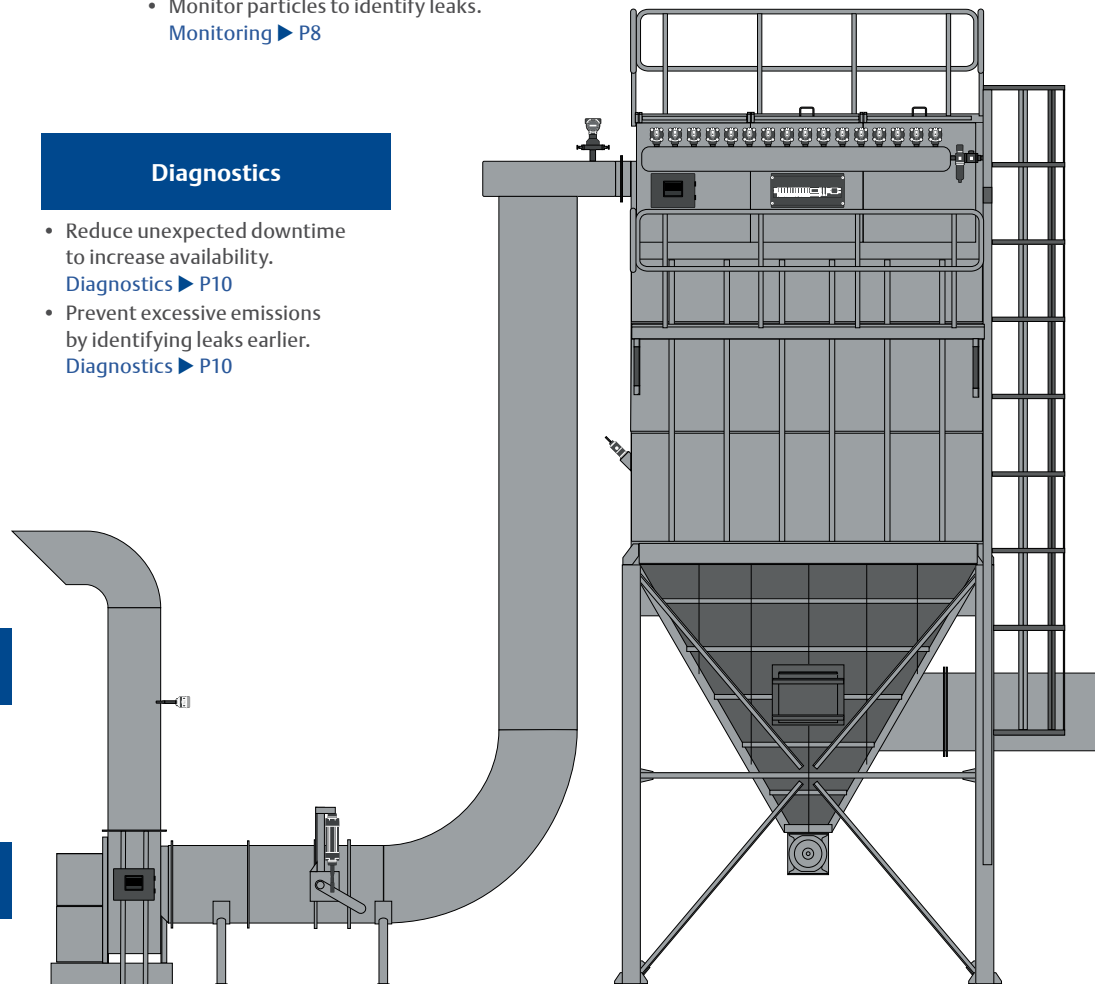
- Increase cleaning effectiveness and efficiency. [Cleaning ▶ P6](#)
- Reduce compressed air consumption and energy costs. [Cleaning ▶ P6](#)
- Reduce maintenance and increase service intervals. [Cleaning ▶ P6](#)

## Air preparation

- Prepare compressed air to prevent damage and wear to valves. [Pneumatics ▶ P12](#)
- Identify leaks in pneumatics systems. [Pneumatics ▶ P12](#)

## Measurement

- Measure differential pressure to identify filter clogging. [Measurement ▶ P8](#)
- Improve pressure measurement accuracy with temperature compensation. [Measurement ▶ P8](#)





## Optimal cleaning performance

Increase the effectiveness and efficiency of dust collector cleaning and reduce energy costs by implementing advanced compressed air control technology that reaches peak pressure quickly and provides higher peak pressure and flow rate.  
Learn more. ► [p6](#)

## Sensing and monitoring

Provide insight into the performance and health of the dust collector system by obtaining critical data using accurate and reliable particle, differential pressure and temperature sensing technology.  
Learn more. ► [p8](#)

## Diagnostics and control

Improve dust collector system control and performance, reduce unexpected downtime, better schedule maintenance and prevent excess emissions and process problems through advanced control, diagnostics and real-time leak detection.  
Learn more. ► [p10](#)

## Pneumatic control and air preparation

Ensure reliable control of dampers using advanced motion control and sensing technology and increase the performance and health of pneumatics systems using air preparation and management systems.  
Learn more. ► [p12](#)

## Optimal cleaning performance

Precise and reliable control of compressed air is essential to optimize dust collector system cleaning performance and efficiency. Emerson's proven pulse valve technology generate highest peak pressure to increase filter cleaning efficiency, closing quickest at the end of each pulse to reduce compressed air consumption. Installing valves designed specifically for the harsh environments of dust collection, supports greater system reliability and reduces maintenance costs. With a comprehensive valve portfolio that has the necessary industry certifications, Emerson can help to streamline both your procurement and approvals processes.



### What's your opportunity?

- Lower energy costs by optimizing the cleaning and reducing compressed air consumption
- Increase dust collector availability by implementing reliable components that prevent unexpected downtime and increased maintenance



### High-efficiency valves enable dust collector manufacturers to create more cost-effective systems

Valves that offer high flow, extremely short response times and fast pulsing allow dust collector systems to operate at peak pressures for best cleaning efficiency. Robust designs increase life and reduce downtime.



### Services offered...

- Localized distribution across the globe
- Comprehensive, 24/7 on-demand technical support
- Express shipment program ensures you get the product or replacement when you need it
- Customized solutions for unique application specifications



## Featured products to optimise cleaning performance

### ASCO™ Series 353 Pulse Valve



Two-way pulse valve designed specifically for reverse jet-type dust collector systems.

- Higher peak pressure and wider temperature range
- Reduced air consumption saves energy
- Extended lifespan
- Patented Quick Clamp mounting system reduces installation time

### ASCO Series 257 Pilot Valve



Two-way, normally closed direct acting pilot valve designed for use in dust collector systems.

- Rugged forged brass body construction
- Compact low weight construction, designed for panel mounting
- Can be equipped with explosion-proof solenoids for hazardous locations

### ASCO Series 110 and C20 Pilot Valve Boxes



Compact pilot valve boxes with direct operated, integrated pilot valves designed for remote control of ASCO Series 353 pulse valves.

- Contains 2 to 12 valves
- Built-in heating elements for trouble-free operation at low ambient temperatures
- Intended for use in potentially explosive dusty atmospheres according to Directive ATEX 2014/34/EU

### ASCO Series NF/WSNF Operator



Explosion proof operator suitable for use in potentially explosive atmospheres according to ATEX-Directive 2014/34/EU.

- Easy electrical installation by means of a screw terminal coil
- 1/2 NPT threaded entry hole (M20 x 1,5 in option) for a broad range of cable entries
- IP66/67 ingress protection



For more information about increasing the reliability and efficiency of dust collector systems, visit [Emerson.com/dustcollector](https://www.emerson.com/dustcollector)

## Sensing and monitoring

Ensuring optimal dust collector system performance and availability requires accurate and reliable process data. Emerson's robust, intrinsically safe particle sensors, that are simple to integrate and install, provide data to a monitoring system to quickly identify leaks. This reduces the time to troubleshoot issues and ensures dust collectors operate efficiently, leading to lower operating costs. Static and differential pressure transmitters designed for challenging environments help to monitor filters to prevent clogging. Pressure measurement accuracy is increased with temperature compensation, using data obtained from very accurate and stable temperature transmitters.



### What's your opportunity?

- Accurately monitor dust particles in the air to help identify leaks in real-time, reducing emissions, and time spent troubleshooting
- Monitor differential pressure to identify clogged filters that erodes dust collector performance and efficiency



### Gain insight into system health for improved performance

Getting accurate and timely data about the performance and condition of your pulse-jet cleaning system is important. Preventing and solving issues quickly will prevent emissions and maximize system availability. Emerson experts can help.



### Services offered...

- Technology and application support delivered by experienced global representatives
- Local language support and advice



## Featured sensing and monitoring products

### ASCO DPT Particle Sensor Series 152



Reliable particle sensor for detecting low level leaks in a dust collector system.

- Fully electrically-isolated probe provides reliable detection of corrosive moisture and most conductive particles
- Cost-effective solution justifies monitoring even in small nuisance dust collection systems
- Measurement accuracy and sensor life unaffected by heat and vibration
- Automatic self-tests provide compliance to industry regulations and enable use in critical process applications

### Rosemount 3144P Temperature Transmitter



Industry-leading temperature measurement accuracy and stability, with a dual-compartment housing to ensure reliability and advanced diagnostics to keep your measurement point up and running.

- Rosemount X-well™ technology offers accurate non-invasive temperature measurement eliminating the need for a thermowell or process penetration
- Hot Backup™ capability and sensor drift alert utilizing dual sensors ensure measurement integrity
- HART® and Foundation Fieldbus connectivity

### Rosemount™ 3051 Pressure Transmitter



Rosemount pressure transmitters provide ready-to-install pressure, level and flow measurement solutions that are designed to meet all application needs.

- Unmatched accuracy, reliability and ease-of-use
- Advanced diagnostics enable process insight and proactive maintenance
- Scalable, integrated solutions help increase safety and reduce installation costs
- HART® and Foundation Fieldbus and WirelessHART® connectivity

### ASCO Pressure Transmitter Series P850



The P850AD differential pressure and P850AS static pressure transmitters are designed for monitoring filters and any particle laden process.

- Prevents the clogging that occurs with gauges and transmitters that use a small tube to the dirty side of the process
- Rugged ceramic sensing element provides accurate measurements



## Diagnostics and control

Emerson's Dust & Pulse technology (DPT) help prevent excess emissions and process problems by providing early leakage detection, reduced demand for energy resources, increased lifespan of filter bags, and real-time health diagnostics of filtration systems. DPT designed with application-specific electronics, refined diagnostic and control algorithms, enables low and stable differential pressure control performance with reduced pulsing counts ensuring optimal cleaning performance. This significantly reduces total cost of ownership (TCO) and provides industry 4.0 technology for improved overall plant operations.



### What's your opportunity?

- Optimize the performance of the dust collector system through enhanced control of the pulse-jet cleaning process.
- Reduce emissions and increase maintenance efficiency by quickly identifying the location of leaks using realtime monitoring.



### Optimize performance and reduce operating costs

Improved control helps to optimize the performance of your cleaning system, lowering energy consumption and costs, while real-time diagnostics supports better decision-making and maintenance scheduling for more efficient operations.



### Services offered...

- Lifecycle services to support service requirements
- Online configurator to select the right product option

## Featured diagnostics and control products

### ASCO DPT Monitor Series 150



Class-leading online particle monitoring solution for detecting leaks in multi-department dust collection systems.

- Supports up to 16 high-precision measurement points from a single module
- Detect particles of less than 1mg/m3 in air flow
- Provides immediate awareness of issues to support better decision-making and maintenance planning

### ASCO DPT Controller Series 151



Pulse-jet filter cleaning controller for optimizing the performance of filtration and dust collector systems.

- Application-specific control algorithms and advanced electronics maintain stable differential pressure and dust extraction velocity
- Integrates measurement and analysis of differential pressure, particulate, header pressure, pulse counts and run time
- Condition monitoring and diagnostics

### ASCO Series E909 Electronic Valve Controller



Designed to control up to 48 solenoid valves in a dust collector system.

- On/off filter cleaning cycle controlled from an external switch
- Adjustable pulse and interval times, plus additional post-cleaning cycle mode
- High immunity to external interference
- ATEX Zone 2-22

### PACSystems™ RX3i CPL410 Edge Controller



High performance control system with integrated edge capability that provides real-time deterministic control, analysis and visualization of data at the machine level and connectivity to the IT and cloud level.

- Process and diagnostic data analyzed immediately for improved decision-making and action
- Secure access to data from previously isolated machines and equipment



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# Pneumatic control and air preparation

Aventics high performance cylinders, ASCO rugged solenoid valves, Topworx proximity sensors/limit switches provide reliable control of sliding dampers and isolation valves for dusty air flow. ASCO IIOT solution for pneumatics systems provide real time monitoring of cylinder performance, air consumption and leakage detection, helping to reduce down time, energy consumption and emission.



## What's your opportunity?

- Extend the life of cylinders and valves by preventing damage and excessive wear caused by dirty air, reducing maintenance and maximizing dust collector system availability
- Gain greater visibility to the health and performance of the pneumatic system, helping to identify leaks that increase energy waste operating costs
- Ensure precise control of damper opening and closing, with visibility of position to support safer maintenance procedures



## Increase the reliability and efficiency of your pneumatic system

Continuous clean air supply helps maintain pneumatic system performance and increase the life of components. Actionable information using Emerson's IIoT solutions identifies leaks and reduces operating costs.



## Services offered...

- Technical support for specification, installation, performance or maintenance
- Extensive product portfolio minimizes the number of vendors
- Complete air preparation design
- Online configuration tool and downloadable CAD drawings

## Featured pneumatic control and air preparation products

### AVENTICS™ Series PRA and TRB (ISO 15552) Cylinders



Heavy duty cylinders best suited for harsh environment.

- Precise adjustable pneumatic cushioning reduces noise and vibration
- Corrosion-resistant 431 stainless-steel piston rod
- Scraper modules enable piston rod sealing change at site without removing cylinder

### AVENTICS Series 651, 652 and 653 Modular Air Preparation



Modular filter, regulator, lubrication device that prepares and regulates compressed air to ensure optimum performance of pneumatic systems.

- Modular format supports fast assembly and maintenance
- Multi filtration options (particulate, coalescing and absorbing)
- Flow sensor options with IIOT communication

### ASCO Series 521/531 Solenoid Valve



Aluminum mini spool valve, ideal for piloting pneumatic cylinders.

- High quality coil resistance to heat and moisture and suitable for high ambient temperatures and outdoors
- Adaptable, enabling control of double-acting and single-acting actuators
- Robust and long-lasting stainless-steel manual operator
- Non-breathing construction enable operating under dust laden condition

### TopWorx™ Go™ Switch Proximity Sensors



Proximity sensors engineered to meet tough applications while offering high reliability, installation flexibility and dependability in all environments.

- Proximity switch without moving parts – long life
- Immune to electrical noise, weld fields, and radio frequency interference
- Easy to use without requiring power supply



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# A distinct, expert offering backed by the experience and resources of Emerson

Emerson's fluid control and pneumatics portfolio applies industry expertise and clever solutions to your unique business challenges today and tomorrow. We are forward thinkers – ready to help you with smart technologies, unmatched product reliability, and a proactive, consultative partnership approach designed to improve your performance. Working with Emerson means you can innovate your process business operations without incurring unnecessary risk. Emerson experts understand the critical reliability required for your industry and foresee how fluid control and pneumatics can improve your business. With our expertise, your resources can be free to focus elsewhere.



## Plan and design

- Producing with certainty and agility
- Online product and CAD configurators



## Implement and build

- Application-specific expert consultations
- Ready-to-install customized packages



## Sales and service

- Extensive global channel network
- Technically laden automation solutions experts.



## Education and training

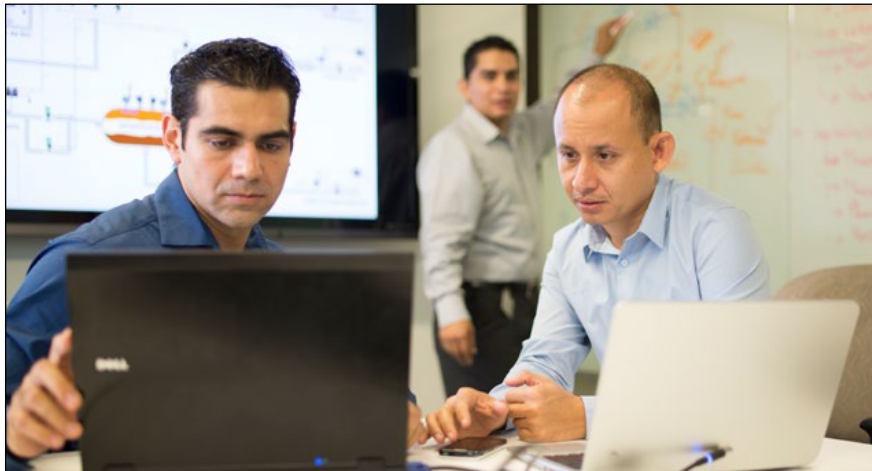
- Educational courses for product and technology enhancements
- Learning and training centers









Our extensive product offering, invaluable industry expertise and global support makes us the ideal single-source automation supplier for your dust collector systems.

## Get started



Emerson delivers time-tested and innovative dust collector solutions designed to help you improve your system efficiency and reliability. Contact us now for world-class technologies and services that can maximize your system performance. Getting started is easy.

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