

## How To Choose A Dust & Fume Collector

**RoboVent's Recommendation: 5 Things to Know to Make Sure You Don't Get Burned. When it comes to buying industrial ventilation equipment, it can be difficult to properly evaluate a dust collector's capabilities.**

When it comes to buying industrial ventilation equipment, it can be difficult to properly evaluate a dust collector's capabilities. What buyers see most often are claims about construction, reliability or how long a company has been making them. Even though these claims have become standard fare, they do little to help a buyer differentiate one unit from another. To compound the matter, manufacturing's needs have changed over the past 20 years. Improving plant safety and productivity are pressing issues. Obviously, air quality is an important factor in reaching those goals. But creating an effective ventilation system requires that a wide range of variables be considered, from the type of dust and fumes produced to the air flow dynamics that carry the particulates and pollutants throughout a plant. So here are five important features to examine if you want to hit pay dirt when choosing a dust and fume collection system.

### 1. Rough And Ready

A well-designed dust collector integrates every component needed to make it operational — cabinet, motor, blower, control panel, safety features, filters — into one cohesive design. The only things that should be required on-site are simple electrical and compressed air connections. Too often buyers have to spec a cabinet and the mechanical components separately, and then are faced with hours or days of labor expenses to wire and connect the individual components. Engineering the proper fit and performance, compounded by this more complex installation makes it more expensive and challenging. Today, choosing a complete package eliminates the need to source and spec individual components, or schedule and coordinate a more complicated installation. Furthermore, units that are completely assembled prior to shipping can be properly inspected and tested before they leave the manufacturer. Of course, this should include the all-important leak test to ensure the integrity of a cabinet. A fully functional collector with an integrated cabinet, motor blower and particulate containment unit is one indication of a smart design that will be easier to install.

### 2. Get Wired

For years, the best way to improve the performance of a dust and fume collector was to find a suitable control panel that could be mounted to the cabinet in order to automate certain functions. This often required contracting an electrician to wire and install this add-on equipment. Sounds a little like buying a motherboard and CPU to assemble your own computer. Will it work? Not without a keyboard. But now some companies — the innovative ones — are designing ventilation equipment that incorporates an intuitive electronic control panel that automates the entire process without having to add or install an auxiliary control system. When you're evaluating control systems look for those that start and stop instantaneously as a welder or machine operator works. The best control systems monitor the collector's performance continuously including the blower and the filter differential pressure; have built-in diagnostic features; and track maintenance history to help maintenance and engineering staff create a safer environment and maximize a collector's performance. A collector with an integrated control panel that has a digital touch screen interface is clean, sleek and far more effective.



### **3. Beware Of Suction Loss**

What does it take to keep a dust collector performing at peak efficiency? Clean filters for starters. The solution is simple enough: Regularly shake it clean of particulates and you can extend the life of the filter. So most cartridge collectors include some form of pulse cleaning technology intended to jar the dirt loose from the filter so it can fall into a containment bin. But here's the bottom line. Shooting a pulse of air through a filter might dislodge the surface dust but it doesn't necessarily achieve the goal. The natural tendency is for the air transporting the particulate to re-entrain, or re-deposit the particulate on adjacent filters rather than into the containment unit. In the end, this pulse cleaning technology is largely ineffective because the re-deposited dust continues to plug the filters.

Collectors with advanced pulse cleaning technology utilize a more highly engineered solution based on air flow science. Each filter should have a dedicated electronic pulse mechanism or valve that is programmed in sequence. A sequential, double-pulse action will neutralize the tendency of the particulate to re-deposit on nearby filters. Even distribution of the pulse pressure through a cone or similar device helps ensure that the entire filter will be cleaned, not just the top or bottom. Filter orientation within a collector is also vital. Collectors that have filters in a vertical position provide much less exposed surface area for the potential re-deposit of particulates.

### **4. Gaze Into The Future**

Keeping a lid on growing operational costs is an on-going challenge for everyone in business. Filters are one of those costs. Dust collectors should have high-quality filter media in order to help keep a plant cleaner and safer for employees. But how long are the filters projected to last? Three months? Six? A year? Are they simple and fast to replace when it's time to do so? The correct size and design of a system is also crucial. If a collector is too small for the application it will result in rapidly consumed filters.

Another operating cost to consider is the power a ventilation system consumes. The best collectors minimize energy usage when they start and stop automatically with a machine operator, and actively adjust their operating speed and power to match the level of activity as well as the condition and resistance of the filters. How can you predict a collector's performance prior to purchase? Guarantees are an important indication of the reliability of a collector, as well as the company that manufactured it. How long will your purchase be covered by the manufacturer? Are you confident in a collector that is guaranteed for one year, or is five, 10 or maybe 15 years important to you? Acquisition and startup costs are important to evaluate the value of a ventilation system but they're not the whole picture.

### **5. Smart Collectors Put Up A Fight**

Lets face it, welding and cutting metal is not without its risks. But metalworking is no different than most manufacturing processes in that a certain amount of caution is required to maintain a safe environment and protect your investment in equipment. Dust and fume collectors perform a crucial function in process engineering and as a result are often the front line of defense in these operations. What can be an unrecognized risk is the potential for air leaks during a collector's operation. Cabinet construction is important. Are seams and joints fully welded and engineered to create a perfect seal? Verifying that they are is the first step. The next line of defense should include a sensor in a collector that can detect a leak if one occurs, then instantly shut an operation down to prevent exposure to potentially harmful fumes and particulates.

Another important safety feature in a dust collector is a fire suppression system that is instantly activated in the event that particulates are accidentally ignited during welding or other operations. The best collectors offer a system that can detect both the presence of smoke and heat. Typically, when smoke is detected a damper is closed



to eliminate oxygen and smother a fire. If heat is detected, FM-200 fire suppressant gas is deployed to extinguish the fire and protect employees and your investment in equipment and the facility.

Making the right choice in ventilation equipment for manufacturing operations can pay dividends long into the future. It's important to look closely and ask questions about all your options. When the dust settles, you'll be glad you did.

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