COST ANALYSIS GUIDE: THE TRUE COST OF RUNNING A DUST COLLECTOR

THE PRICE ALONE DOESN'T TELL THE WHOLE STORY

Dust collection is a necessary operation for any manufacturing organization to maintain air quality, safety and equipment longevity. To determine which dust collection system is right for your business, it's important to consider more than just the price. A Total Cost of Ownership (TCO) comparison will enable you to make a more accurate purchasing decision, and in the long run, save you money.

To determine the TCO of a dust collection system, three things should be evaluated: the energy required to run the equipment, the cost of the consumables, and the system's maintenance and disposal.

A.C.T.
DUST COLLECTORS

ENERGY COSTS

Electrical energy costs money in real dollars, and therefore, the amount of energy a piece of equipment requires will affect the TCO. Though several components of a dust collection system utilize electricity, the largest opportunity for electrical cost savings comes from the blowers and fans that move air through the system.

During equipment installation, make sure to optimize your ducting to reduce pressure loss, and choose a design that encourages air flow and proper transport velocity. In addition, look for a system that incorporates energy control devices and filters that regulate the amount of energy used during dust collector operation.

Filter differential pressure is directly proportional to the amount of air being moved through the dust collection system. Because the amount of air being moved throughout the system is also directly proportional to the energy consumption of the system's fan or blower, the amount of differential air pressure plays a big role in the TCO.

With a new filter, there is low differential pressure because no material has built up yet, meaning there's nothing impeding airflow. That may seem ideal, but in reality, more air than necessary may be flowing through the system, which is wasting energy (and therefore wasting money).

One way to avoid this problem is to use a variable frequency drive (VFD), which electrically controls the fan speed, as opposed to a constant-speed fan. A VFD ensures that the proper amount of energy is being used based on the differential pressure at any given moment. The return on investment for a VFD typically is less than a year. Premium efficiency motors are standard now.

Energy costs are also affected by the amount of compressed air needed to pulse-clean filters, which can vary significantly depending on design. Look for equipment with digital, solid-state pulse control with a differential pressure switch for fully automatic on-line, on-demand and downtime cleaning, to keep the energy usage efficient at all times.

CONSUMABLES

Another consideration when evaluating dust control options is the cost of consumables. Expenses associated with this may include:

- Replacing filter cartridges
- Delivery cost for replacement parts
- Labor cost to switch out parts
- Cost of maintaining inventory (to eliminate downtime while waiting for replacement parts)
- Lost production while replacing parts

To minimize the cost of consumables, the most important things to consider are the life cycle and efficiency of components. Simply put, the longer the lifespan of a part, the less frequently it will need to be replaced. Look for equipment with high quality, efficient filters and components with a warranty to back up quality standards.

As an example, A.C.T. Dust Collectors incorporates several features to extend component and filter life. Perhaps the most popular feature is the ACTion-Lock Quick-Release filter door. Aluminum and stainless steel parts are used in the construction of the door cam and mounting brackets for better wear in outdoor environments. The simple and secure design eliminates the need for a support frame internal to the filter or “yoke.” Because there is no internal support frame to impede the filter cleaning process, A.C.T Dust Collectors can achieve a clean, unobstructed pulse for improved filter cleaning and longer filter life. In addition, the quick release technology reduces the amount of time it takes to replace filters.

MAINTENANCE AND DISPOSAL

Downtime to perform maintenance or switch out a part equates to labor cost, so consider equipment that is of high quality that won't need excessive maintenance beyond the typical filter change outs and cleaning operations.

By reducing the frequency of part replacement, you reduce the amount being disposed of and the associated costs of disposal. This is another reason why part quality and long service life are paramount to cost saving. This should also be considered when buying the dust collector. Lower air-to-cloth ratios will result in better filter life, lower electrical consumption and fewer disposal costs.

COMPARING DURING THE PURCHASE DECISION

When searching for a dust collection system, consider the TCO based on the factors discussed in this guide. The price alone doesn't tell the whole story—sometimes a less expensive system will end up costing you quite a bit more. For a more reliable cost estimate, consider the following:

1. How much energy will the system require to operate? Does the equipment include a VFD? Does it have high-efficiency filters?
2. How often will I need to replace consumable parts? What's the expected life span of the filters? Are there features that help extend the life of the parts?
3. What will it cost to maintain and dispose of the parts in the system? Is the dust collector applied properly? Is the air-to-cloth ratio correct? Is the duct work designed properly?

Answering these questions will help you determine the true cost of operating a dust collection system, and ultimately will help you make the right choice for your company.

For further information or to discuss your specific needs, please contact A.C.T. Dust Collectors' team of experts, here.