Griffin Filters

Better Environmental Solutions by Design™

The Advantages and Disadvantages of Buying Used Dust Collectors

With the closing of plants in the recent past and the scaling back of manufacturing, there is a lot of used pollution control equipment proliferating the industry. From a first look, buying used equipment looks like a great deal. Saving on capital expenditure along with a quick delivery to resolve an air pollution issue is very enticing. You may discover what appears to be a suitable baghouse for your application, BUT here are some questions that you need to take into consideration before you write the check and take delivery:

Is the equipment the proper design for your specific application?

- Can it handle the chemical and physical properties of the dust collected?
- Is there sufficient air-to-cloth ratio for the application?
- Is the filter media correct for the application?
- Is the interstitial velocity correct to allow for good filter cleaning?
- Does the equipment need to meet NFPA requirements for hazardous or explosive conditions?
- Do you know for sure if the dust collector will meet your EPA requirements?
- How old is this equipment? Is it in acceptable working order or has it been “in storage” for an extended period of time?

Do you know what product this existing unit was exposed to in the past? This is crucial because it is virtually impossible to completely clean the product contact surfaces of a baghouse system. Liability risks from chemical incompatibilities can range from contaminating your product to the creation of a hazardous environment.

Is this equipment rated for your design temperature condition?

Is this equipment rated for your design pressure or vacuum condition?

If the answers to the above questions are satisfactory, then you may have discovered a cost effective solution for your application.

However, if the answers are not satisfactory, the equipment being considered will not meet your application requirements. The additional time, capital resources and logistics to bring this unit in compliance will almost certainly exceed the cost of a new system.

Additionally, if your application requires compliance with an EPA performance guaranty to meet a specific particle emission (PM) limit, this can only be provided by an original equipment manufacturer. Future fines/ court actions and legal fees can cost much more than the savings initially accrued.

Buying NEW just may be the better choice

Equipment is manufactured to your specifications and properly sized, yielding the maximum particulate collection at the lowest operating costs.

To arrive at the proper collector design, the proper sequence of steps should include:

Selecting the correct air-to-cloth ratio for the application is one key design factor.

The analysis of physical and chemical properties of the dust is extremely important for selecting the correct materials of construction. Factors carefully considered include size, type, shape, and density of dust; average and maximum dust load concentrations; chemical interactions with materials of construction, explosiveness and flammability characteristics, and additional physical properties such as abrasiveness, electrostatic charge, and agglomeration tendencies.

Proper fabric features are then chosen. The designer must determine the following: woven or felt filters; filter thickness, fiber size, fiber density, filter treatments such as napping, resin and heat setting, and special coatings. With the determination of dust and gas stream properties, filter choice and special treatments of the filter can be properly made.

Filter cleaning methods must be matched with the chosen media. The ratio of filtering time to cleaning time is the measure of the percent of time the filters are performing. If bags are cleaned too frequently, their functional life will be greatly reduced. If the bags are not cleaned often enough, higher pressure differential leading to greater operating costs will be incurred.

Mechanical stress from cleaning and filtering should be minimized to extend bag life. The amount of flexing and creasing to the fabric must be matched with the cleaning mechanism and the A/C ratio; pulse-jet units place the most vigorous stress on the fabric.

Bag spacing is very important for good operation and ease of maintenance. Spacing affects the velocity at which the gas moves through the baghouse compartment. If bags are spaced too close together, the interstitial gas velocity would be high because there is very little area between the bags for the gas stream to pass through. Settling of dust particles into the hopper below during bag cleaning would be negated by high upward velocities and re-entrainment would take place. It is preferable to space bags far enough apart to minimize this potential problem but not so far apart as to increase the size of the baghouse shell and associated costs. For pulse-jet baghouses, bag spacing is also important to prevent bag abrasion.

Emission regulations for grain-loading and opacity requirements will ultimately play an important role in the final design decisions. Baghouses usually have a collection efficiency of greater than 99.99%. Many emission regulations (and permit limits) require that industrial facilities meet opacity limits of less than 10% for six minutes, thus requiring the baghouse to operate continuously at optimum performance.

Key takeaways for new equipment

Equipment properly designed for the specific application.

Equipment guaranteed to meet regulations.

Full factory warranty.

Maintenance cost and potential downtime are minimal because you are starting with all new components.

About Griffin Filters

Griffin Filters has been a leader in fabric filter dust collection since 1964. We have over 25,000 installations worldwide, serving many of the world's top manufacturers. Our knowledge and experience gives us unique insights into diverse industries and allows us to design efficient and cost-effective solutions for an array of applications.

Contact Griffin today and discover how we can meet your dust collection needs.

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