Griffin Filters

Better Environmental Solutions by Design™

Cartridges or Traditional Filter Bags

Tips for determining the best filtration method for your application.

Which is better—a Baghouse or a Cartridge Dust Collector? There are many strong opinions and compelling arguments, largely driven by the success or failure of installed projects. As one would expect, the answer boils down to good applied application knowledge as both technologies have pros and cons. While every application can have its own list of unique or special challenges, we recommend the following guidelines be considered:

Know your application

Knowledge of your application is paramount to providing an optimal filtration system. If the collected particulate is sticky, tacky or has any agglomeration characteristics which allows it to adhere to itself, a cartridge collector will operate very poorly. When the pulse cleaning mechanism engages a cartridge, the pleated “peaks & valleys” do not expand like a filter bag. Instead, they collapse in on themselves. When this occurs with a very sticky application, the collected particulate will be pressed into the internal valley of the cartridge pleat. If this material does not release and drop out, that portion of the filter area is effectively blinded over which puts more demand on the remaining effective filter area. Under these conditions, the differential pressure of the system will increase, resulting in either higher power consumption of the system fan or fan overload and failure.

Material Entry

Should the unit incorporate an inlet located in the hopper or elevated near the top of the dirty air plenum as a high entry inlet? Surprisingly, the location of dirty inlet on a cartridge collector does have an impact on the effective operation of the unit. Consider the following:

A cartridge collector will incorporate a smaller vessel. This is a trademark advantage of this style of unit; optimal filtration in a smaller and more compact package. However, the internal velocities play a significant role in the effective operation of the filtration process. There are two terms for the measured velocity inside a baghouse: Can velocity is the upward air velocity below the bottom of the filters. Interstitial velocity is the upward air velocity between the filters. If the interstitial velocity is too high, the dust will stay in suspension and not drop into the hopper. If the dust stays in suspension, it will gravitate to the filters and ultimately penetrate and blind them over, causing a high differential upset condition which can only be corrected by changing the filters.

There are several solutions which can offset this upset condition:

1.) Increasing the spacing of the filters will lower the interstitial velocity. However, this will increase the vessel size, effectively negating the most important advantage of cartridge collectors.

2.) A better solution is to offer a high entry inlet. If designed properly, the airflow will enter the dirty air plenum and disburse with a downward flow pattern. This greatly reduces the interstitial velocity and protects against re-entrainment of the particulate.

Size Matters

Depending on the particulars of a given application, a Cartridge Collector is typically much smaller than a Baghouse. Because of this, cartridge collectors can be very useful for indoor applications with tight space restrictions.

Consider a cartridge unit if possible for handling of combustible dusts. The internal volume of a cartridge collector is typically much less than a baghouse. Because of this reduction, the required protective measures for a cartridge collector are typically more cost effective than with a baghouse.

Filter Media

Longevity: the ability for the filter to release collected dust can be nearly as important as stopping it from going to atmosphere. This is essentially optimizing the life cycle of the system filters while providing for discharge emission protection. For filter bags, the primary factors include media selection, weight and the finish on the filter media. For cartridges, the primary factors include media selection, coatings on the media, pleat spacing & depth as well as size and orientation of the filter cartridge.

Try to Avoid

A manufacturer that brings out "new filter technology" every few years. These are typically manufacturers of a proprietary type of filter and have no competition when it is time for replacements. Unfortunately, the claims of better filtration or cleaning are often not realized and the replacement costs of these filters reflect the lack of any competition, at least until the patent runs out.

Collectors that are shown in a catalog. Too often the cookie cutter approach results in modifying the application to match the limitations of the collector. It may be simple things like location and size of the inlets and outlets….or it could be more serious items that would negatively affect the ability to remove dust from the hopper or other material handling limitations.

Filters of oddball shapes, e.g. oval, envelopes, honeycomb, etc. Conventional cylindrical type filters work best as symmetry is best for dust distribution and cleaning.

About Griffin Filters

Griffin Filters has been a leader in 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.

info@griffinfilters.com | (315) 451-5300 | griffinfilters.com