



**Griffin  
Filters**  
Better Environmental Solutions by Design™

# Tech Notes

## Top Load vs Bottom Load – Pros and Cons

What do I buy? Which way is best to go? Do I want a Top-Load Baghouse or a Bottom Load Baghouse? Well, the answer depends on a number of factors. Factors which influence the decision include:

- The Application.
- How big is the baghouse?
- The location on the baghouse?
- Physical constraints on the size of baghouse, in particular, height constraints.

A good Sales Engineer will review with you the factors that make a Top Load or a Bottom Load system a better choice but in general, Top Load and Bottom Load systems have specific Pros and Cons. This Tech Note lists Pros and Cons of each system to help you make a better informed decision on which style is right for your company and application.

## Top Load Baghouse

### Top Load Baghouse Advantages

- Bag inspection and change-out is on the clean top side of the system
- The employees do not have to enter the dirty side of the baghouse which addresses health and safety concerns.
- Filters can be inspected and changed out in all types of weather with a walk-in plenum design (Hatch access requires good weather)
- Baghouse leak detection powder can be used with ease as there is easy access to the clean air side of the baghouse. Operators look down into the filters to see if any of the fluorescent powder entered any of the filters. This is not easy with the bottom load system as there is limited to No Access to the clean air plenum.
- Replacement of a single bad filter is quick and easy.
- There is no need for plywood or other temporary floor, ladder or elevated catwalks inside the collector to reach the clamps for filters longer than 7' long (filters 87" or longer).
- Plenum can be outfitted with lighting and ventilation doors.
- With a top-load, maintenance people walk on the tubesheet and regardless of the size of the person, they can get to the filter holes in the tubesheet to replace filters.
- In a top load, the filters snap into place using a snap band collar. Very easy.



- Spent filters can be unsnapped and dropped down into the hopper for removal thru hopper access door keeping the clean side of baghouse cleaner.
- For a Top Load with a Hatch Access System, there is no need for employee training and certification for confined space operation. No OSHA permits required. No Attendant is required. (Note: A Walk-In-Plenum may or may not be considered a Confined Space. With adequate lighting and ventilation, a walk-in plenum does not meet the requirements of a Confined Space.)
- Costs –Top Load with Hatches \$\$\$ < Top Load with Walk-In-Plenum \$\$\$ < Bottom Load \$\$\$ for system with identical air to cloth ratio, filter size and number of filters.

## Top Load Baghouse Disadvantages

- Top load system are usually not a great choice for a silo/bin filter application. Silos are tall enough. Climbing a ladder on top of the silo to reach the top load access takes a fearless maintenance operator. But, there are easy to maintain Top Load systems that are an ideal solution for a silo/bin vent application.
- Top Load Systems with hatch access to the filters cannot be maintain in inclement weather.
- Additional height needed to remove cages which limits indoor use. Overall height and loading of filter cages may be restricted by building interior structure.

## Bottom Load Baghouse

### Bottom Load Baghouse Advantages

- Small bottom load systems where the filters can be reached without entering the baghouse are versatile, easy to maintain, can be used with a hopper and support steel or as a silo/bin vent.
- Better fit when there is a height restriction.
- Filter Access Door allow visual inspection of the interior of the baghouse enabling direct inspection of the filter exterior and dust cake as well as the opportunity to check for bridging problems.
- The hopper is visible through the Filter Access Door enabling visual inspection and some accessibility to knock dust off the walls with a bar/stick.

### Bottom Load Baghouse Disadvantages

- There are many issues with accessing the filter/cage/thimble/clamp assembly depending on the length of the filter. 7' long filters are an ideal size as many people can reach the tube sheet. 6' filters and short can be difficult for taller operators to walk around inside as the tubesheet is at approximately 6.5 feet. For filters longer than 7 feet, the tube sheet is at 8.5' and higher. Most people will not be able to reach the filter/cage/thimble/clamp assembly. Ladders or catwalks are required. Filter changes typically require two maintenance operators. One to hold the filter/cage to the thimble. The other to align and tighten the clamp.
- Properly attaching the filters/cages with clamps to the tubesheet thimbles is a tedious task, especially for long filters. If not done right, filters/cages can fall off during operation.



- It is not easy to properly align and clamp the filter to the tubesheet. In a top load, the filters snap into place using a snap band collar. Very easy.
- Varying degrees of personal protective equipment (PPE) is needed when entering the baghouse house including respirators and protective clothing
- Baghouse needs to be outfitted with lighting and ventilation when performing maintenance and inspection
- Good weather is a required during filter changes as going in and out of the dusty, dirty baghouse with wet clothing will result in more dust accumulating on the person and the person becoming covered in dust mud
- Baghouse leak detection powders cannot be used to detect leaks as there is Limited to No Access to the clean air plenum.
- Proper maintenance is less likely to be performed if personnel need to climb in to the dirty air section.
- Inspection and replacement of the filters is difficult in larger baghouses without access walkways. It requires a lot of work to replace one or more failed bags in the middle of the array as often many good filters need to be removed to get to the defective filter.
- There is no need for plywood or other temporary floor, ladder or elevated catwalks inside the collector to reach the clamps for filters longer than 7' long (filters 87" or longer).
- With a bottom-load, if there is a broken filter in the middle of the baghouse, there is no easy access without walkways. Often, good filters need to be removed to access the broken filter.
- Costs –Bottom Load \$\$\$ > Top Load with Walk-In-Plenum \$\$\$ > Top Load with Hatches \$\$\$ for system with identical air to cloth ratio, filter size and number of filters.

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