



"Your Partner In Indoor Environmental Services"

COMPARISON OF HVAC SYSTEM CLEANING & DECONTAMINATION METHODS

CONVENTIONAL METHODS VS. ADVANCED METHODS

In order to accomplish "source removal" there are two basic components to all duct cleaning systems:

1. Portable or Truck Mounted Vacuum collection device – portables usually require HEPA filtration as final stage
2. Agitation devices – e.g. rags, brushes, whips, nozzles, etc.

It should be noted that the above components are not applicable for cleaning ductwork over 3 ft. x 3 ft. These larger size systems usually require manual crawl-through using portable HEPA vacuums and compliance with OSHA confined space and other regulations.

There is no one tool or system that is applicable for all projects. However, newer "high volume compressed air", i.e. advanced systems have significant advantages over "conventional" systems.

Conventional Duct Cleaning Methods

Features:

Conventional duct cleaning methods apply the paradigm of "the bigger the vacuum collector the better". Relatively high transport velocity / static pressure is required from the vacuum collector since the agitation devices, e.g. brushes, are loosening the debris – not transporting it. Nozzles that are used with conventional cleaning systems are powered by *low volume* air compressors that supply no more than 20 cubic feet per minute (CFM) of air. Pressure for low volume compressed air systems is usually no more than 100 pounds per square inch (PSI). Nozzles that are powered by relatively small compressors are designed by the manufacturer to "sweep" the debris toward the vacuum collector – *once it is loosened by brushes or whips*. (Robots, although considered "high tech", are simply a transport device for "conventional" agitation devices. Usually, frequent access is required due to duct size transitions).

Advantages:

1. Equipment is less expensive (except for robots).

Disadvantages:

1. Multiple access openings are required, usually every 10 to 12 feet
2. Nozzles do not provide sufficient agitation; thus a two step process of brushing and sweeping is arduous and costly in labor hours.
3. Smaller cleaning zones further add to the labor costs and can be disruptive
4. Containment is compromised as agitation devices are continually being removed from ductwork into occupied areas.

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5. Limited applicability for cleaning long runs that span difficult access areas, e.g. elevated or asbestos ceilings.

Advanced Duct Cleaning Methods Collom™

Patented HVAC cleaning systems use *high-volume* compressed air and aerodynamic nozzles to clean air duct systems more efficiently and effectively than conventional technology. A minimum of 180 Cubic Feet Per Minute (CFM) of air is supplied to the nozzle (usually via a tow behind compressor). Pounds Per Square Inch (PSI) delivery is a minimum of 100 PSI.

Features:

1. Nozzles can traverse up to 80 feet with a single access opening
2. Nozzles create an “air knife” effect to cut away duct debris thus providing effective agitation without the need for brushes, in most cases. (When brushes are required, Collom™ provides state-of-the-art brush systems).
3. Air volume from nozzle transports debris down stream in the same direction that vacuum collector is “pulling”. Thus a less powerful vacuum collector is required as the nozzle provides the transport velocity.
4. Nozzles adhere to the sides of any shape ductwork (e.g. round, rectangular, oval), thus handling transitions in size without stopping.
5. Nozzles can effectively operate in vertical risers

Advantages:

1. [More Efficient Use of Labor Hours.](#)
Less frequent duct access equates to less labor, materials, and overall expense. Duct access is sometimes difficult, if not impossible; for example:
 - a. ceilings that need to be penetrated to access ductwork; asbestos ceilings, high ceilings (lift operations)
 - b. thicker gauge sheet metal (e.g. naval ships)
 - c. Restricted area access, e.g. zoned off areas, closed areas, etc.
2. [More thorough cleaning](#)
Can go where conventional systems cannot.
3. [Less disruption to facility](#)
With few access openings, set ups, etc. there is less disruption in the facility. Smaller collector size means less logistics, time and effort, especially aboard vessels. While there are some advantages to more powerful vacuum collectors, they are not necessary with high volume compressed air systems due to the transport velocity provided by the nozzles.
4. [Better containment](#)
Advanced systems are removed from the ductwork far less often. Frequent removal of brushes, whips, etc. from the ductwork results in containment issues (which are often ignored by contractors using conventional methods). Cross-contamination is more likely from pulling out brushes and other conventional tools from the ductwork.
5. [More Professional](#)
The more sophisticated the client, the more they will appreciate the engineering benefits of advanced methods.

Disadvantages:

1. Equipment is more expensive
2. Compressor hose may pose logistical problems (e.g. security, reach)