

Dust Extraction Buyer's Guide

For all woodworkers, a good dust extraction system is essential. Dust can cause serious damage to health as well as reducing the effectiveness of your machine, or even causing damage to it.



Some hardwoods and man made materials are toxic and have been linked to serious health conditions. They also produce extremely fine dust making it essential to take proper precautions. Suitable dust extraction will significantly reduce tiny particles in the air and make your workshop a much safer place to work in.

Record Power high filtration dust extractors have been independently tested down to 0.5 microns, offering the same level of protection as a P2 respirator or dust mask and providing some of the best filtration available for this kind of extractor.

However, it should be remembered that this filtration only applies to the dust captured by the extractor. If the design of the machine does not allow for proper extraction or seals and blast gates are not properly fitted then some dust can still escape into the workshop. Always check for sound extraction design when purchasing machinery. Ensure that seals and blast gates are properly fitted and use additional protection for ultimate safety.

Dust extraction is only part of a safer working approach, so depending on your application and materials, additional protection in the form of dust masks, respirators and good ventilation is always recommended.

	Air Filters	Chip Collectors / Bag Extractors	High Filtration Vacuum Extractors
Suitable as primary extraction		✓	✓
Cleans ambient dust	✓		
Low maintenance costs	✓	✓	✓
Less reliant on airtight enclosure to operate		✓	
Good for large volumes of chippings, e.g. use with planer thicknessers		✓	
Quieter than most alternatives	✓	✓	
Suitable for fine dust down to 1 micron	✓	✓*	✓
Suitable for fine dust down to 0.5 micron			✓
Easily mobile		✓	✓+
Lower cost, ideal entry level machines			✓
More compact than most alternatives			✓
Versatile			✓
Can be used with bench and power tools (using adapters)			✓
Filters do not need regular cleaning or replacement	✓	✓	
Larger models available which are suitable for powering full workshop system		✓	✓

*Using optional filters / cartridges. +Except wall mounted system units.

The Most Common Types of Dust Extractors to Consider Are:

HIGH FILTRATION VACUUM EXTRACTORS

In many ways the most versatile type of extractor – sometimes referred to as HPLV (high pressure, low volume) systems. These units rely on high vacuum pressure from industrial vacuum motors, rather than large volumes of airflow to pull dust into the machines. In these systems the air is filtered before passing through the motor and back out into the workshop.

The main benefit of this system is that whilst a certain amount of airflow is required to cool the motor it does not need the large volumes required by HVLP extractors so very fine filtration can be provided effectively with a much smaller filter. Most of these kinds of extractor filter to below 1 micron as standard. And because it uses a vacuum to pull in the dust it can be used with a wide variety of reducers and hose sizes making it suitable for use with hand held power tools and benchtop machines as well as larger workshop machines. As with other types of extractor, the maintenance costs are very low as the filters and bags can be re-used many times before wearing out and are inexpensive to replace.

These machines also come in a wide variety of options – from single motor drum collecting machines, ideal as a low cost solution for single applications, to larger twin motor wall mounted machines with large collection bags suitable for driving a complete workshop system. Some even offer automatic switching so that the extractor switches on as the target machine is switched on and then runs for a few seconds afterwards to clear the hoses before switching itself off.



Benefits

- Low cost of entry for the simplest machines
- Extremely versatile
- Can be fitted with reducers and different sized hoses
- Contrary to the HVLP system, if you cover the inlet on this kind of extractor the suction power increases
- Fine filtration as standard

CHIP COLLECTORS / BAG EXTRACTORS



This traditional design is sometimes known as an HVLV system (High Volume, Low Pressure). Similar to an air filter, it works by using a large powerful impeller to create a high volume of airflow which pulls the dust into the machine. It differs from an air filter because it is designed to be fed by an input hose attached directly to the dust creating machine. Dust is pulled in and generally collected in a waste bag hanging below the impeller whilst the air is exhausted back out through the top bag (above the impeller) which is where the air is actually filtered.

Most commonly sold with a material bag filter (top bag) it is more accurately classed as a chip collector. Although there are differences in the filtration of the bags – in general most don't filter down below 5 microns which is where some of the most harmful dust resides. This kind of extractor relies on large volumes of air moving through the machine to pull in the dust and the finer the filtration of the bag, the more it resists airflow and reduces the power of the extractor to shift dust.

To be an effective dust extractor and offer fine filtration to less than 1 micron with this type of machine it is generally necessary to add a cartridge filter – this is usually made of a paper like material and compensates for the resistance problem by corrugating the sides to greatly increase the surface area of the top filter and allow adequate airflow whilst offering finer dust filtration.

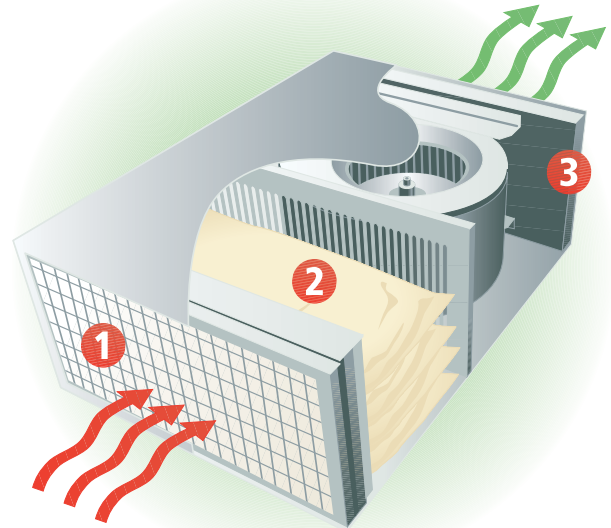
Maintenance costs are very low as the filter bags can be cleaned and only need replacing if worn out or damaged. Similarly, the collection bags can be re-used many times and only replaced if worn or damaged.

Benefits

- Powerful and less reliant on adequate enclosure around the dust producing machine as they are not reliant on a vacuum to operate effectively
- Quieter than vacuum powered systems
- Generally higher collection capacities than other extractors
- When fitted with a fine dust cartridge filter can be a versatile solution
- Usually fitted to wheeled trolleys to allow easy transport around the workshop

AMBIENT AIR FILTERS

These are designed to remove airborne dust from the workshop. An impeller inside the machine creates airflow which passes through various levels of filtration depending on your machine to exhaust cleaner air through the rear of the machine back into the workshop. Ideally it is best to leave air filters running all the time you are in the workshop and ideally for an hour or two after you have finished to clean the air. Air filters generally have low maintenance costs as the filters can be cleaned, so unless they become damaged it is highly unlikely they will need replacing.



Specification - Air filters should specify the volume of air or workshop size they can clean effectively so make sure this is adequate for your workshop.

Filtration - This can vary from simple single stage filter machines that will clean nuisance dust, but may not clean all the finest dust which can be the most harmful, up to machines with several stages of filter and pocket filters which will do a much more efficient job and require less frequent cleaning.

Access - By the nature of the job they do, these units are best sited high in the workshop - either centrally or close to the majority of dust producing machines. This can make them difficult to access so a remote control is common and can be very useful.

Benefits

- Supplementary to direct machine extraction, they are the by far the best solution to harmful airborne dust
- Take up minimal space as they must be positioned high up, often in roof space

WET & DRY VACUUM CLEANERS

These are domestic vacuum cleaners which the manufacturers recommend as suitable for use in the workshop and with wood dust. They usually come with a wide range of cleaning accessories and are relatively low cost. In essence they are HPLV systems but their default specification is for domestic dust cleaning and the filter sizes and collection capacities tend to support this. They also tend to be considerably less powerful than dedicated HPLV extractors. If you already have one then it can be a useful make-do in the short term.

Benefits

- Low cost of entry if you have minimal dust collection requirements or already have a suitable machine
- Can be used as a temporary backup solution in case of emergency