



VACUUM CLEANERS

On which end is the biggest sucker?

By COL NATION

If you are about to tuck into your lunch then stop reading after the next three paragraphs.

My daughter worked her way through university selling small appliances. She was known as the vacuum cleaner specialist as she sold lots of them. Having grown up with a father who was not only a service technician for a large manufacturer of vacuums, but one who started a carpet maintenance business many years ago and is still involved in the carpet maintenance industry today, she understood that size doesn't matter. It's not all about the number of Watts, it is efficiency and effectiveness that matters. It's also about what fits the area being cleaned and how fast it can remove soils.

To understand vacuums better we need to understand what it is we are actually doing with them. Are you using it to improve the general appearance of an area, or are you actually trying to remove dirt and maintain a carpet's value, or are you cleaning for infection control purposes? If it is for the latter two then read on. If you don't care either way then go back to work and think about how you are going to pay for your new carpet when it wears out prematurely, or how you are going to deal with your next Nora virus outbreak.

Here's the yucky bit. I want you to think about what soiling in a carpet is made from. Yes, some of the soil will be tracked in on our feet. This soil will be sand and grit or concrete dust from the foot path. It could be

oily residues from the bitumen car park or leaf litter from the grass and plants outside. If soiling were confined to just these few types of soil then a simple door mat will help reduce the soiling in a carpet and just cleaning the door mat daily will end our problems. But we have to consider the soil that is generated from within the building as people go about their daily lives. This soil can include food and beverage spills or cooking fumes. It can be dead skin cells that are shed in the millions by each person each day or the mucous that is expelled when people cough or sneeze and depending on what type of establishment you are in it can contain other bodily fluids and solids as well.

If you are eating right now you are probably thinking "I should have taken note of Col's

first sentence." If you are not eating at the moment you are probably thinking "Why do we have carpet if it is going to trap all of this horrible dirt?" Funny enough it is exactly this reason that carpet is such a great floor surface. It is a great place to trap and hide soils and hold them until we can get around to cleaning.

Because carpet is a 3 dimensional surface it can trap and hold soil down at floor level where it is well away from our noses. As anyone involved with infection control will know, breathing in dust and the micro-organisms that live on that dust is one of the fastest ways people can pick up nasty diseases. So a surface that traps the soil at floor level will be better to help control the spread of infections. A hard, two dimensional surface, will allow the dust to keep circulating throughout the building spreading infection from one area to another. But eventually this carpet soil trap gets full and it needs to be emptied so it can continue its soil trapping function. We fix this on a day to day basis with a vacuuming maintenance program.

Look down at the floor now and see if you can see any soil. What did you see? A paperclip, three bits of paper, a staple, a bit of fluff and some black things that we hate to think what they are. Is that all the soil that you can see? It probably is, because most of the general soil in a carpet is microscopic and cannot be seen by the naked eye. But it is precisely this microscopic soil that is the cause of airborne pathogens, as well as the overall grey look that you see in a dingy looking carpet. The real job of a vacuum cleaner is to be able to dig this soil out from within the three dimensional surface and not just pick up the pesky paperclips and paper fragments.

So which type of vacuum cleaner works best? If you are only interested in picking up the visible surface litter then go and grab a lawn rake or a broom and a dust pan and you can stop reading now because that will do the job quickly and effectively and it will save you money on a vacuum cleaner. If you are wanting to get serious about hygiene control and maintenance to extend the life and maintain the appearance retention of your carpets, then read on.

There are two main types of vacuum cleaner. Ones that simply suck air, and ones with a rotating bar in the floor tool that provides agitation to release soils so that the suction can pick up the dislodged soils. These may come in various shapes and sizes. We can have some that look like buckets with a lid, sort of a mini R2D2 unit with a long elephant like trunk. There are others that we strap on our backs like a jet pack. Then there are the uprights that are self contained. There are even some that we ride around on like a really tall dodgem car.

Suitability of equipment will depend on the areas being cleaned, for example, back packs are great when we have confined spaces such as stairwells, but when we have larger clear areas such as hallways and general use areas, you can't beat an upright machine for effectiveness and efficiency.

Back injuries are common in the cleaning industry. Mopping floors and vacuuming form a significant percentage of the cause of these back injuries. This can be caused by incorrect use of a vacuum cleaner or poor choice of equipment to suit the purpose. An example is where people choose a back pack vacuum and use it over large areas. It takes around six passes with a suction cleaner to equal the effect of

just one pass with an upright vacuum, so there is six times as much work and of course more chance of injury from repetitive strains.

The action involved to use a suction cleaner is to hold the wand, and push and pull it several times over the same section of carpet. A push pull action is used to provide agitation to loosen the soil from the fibres and the suction then lifts the soil and deposits the dirt in the bag.

An upright vacuum has a rotating agitator bar that provides the vigorous agitation, and again the vacuum lifts the soil and deposits the dirt in the bag. The operator only has to manoeuvre the machine while it does all the hard work. To correctly use an upright vacuum cleaner you simply hold the handle at a comfortable height against your hip. You simply walk forward. When you reach the end of the pass you simply turn around and walk back with the machine happily doing its job. This is a lot less stressful on your back and covers a larger area in a shorter time while providing a deeper level of clean.

Those who are serious about carpet maintenance will have a good quality upright vacuum as the primary machine.

Does size really matter?

A bigger vacuum may simply have a larger container for the dirt. It may be no more powerful or efficient at picking up dirt than a smaller machine, but you will have to empty it less. If you are cleaning up a building site this may be handy, but in a health care situation it can simply mean that nobody bothers to check the dirt container and festering soil remains in the machine for a long time.



Is a 2000 Watt machine better than a 1000 Watt machine? Not necessarily. A Watt is a measure of the power consumed by the machine but it does not measure the effectiveness or efficiency of the machine. A poor quality electric motor could produce 800 Watts of noise and 800 Watts of heat leaving only 400 Watts of useable power for vacuuming. Another factor is the loss of vacuum by leaking through loose fittings or leaking hoses or restrictions in airflow by poorly designed airflow passages.

An upright vacuum doesn't need high power use to be efficient. It only needs enough airflow to deposit the dirt into the bag. The agitator is doing the soil lifting. This will be far more efficient and effective as a bucket machine with 2000 watts of power being consumed.

The next thing to consider is air filtration. If the vacuum is very efficient at picking up dirt, but then has poor filtration, it will simply filter out the paperclips and bottle caps and recycle the finer soils back into the air. This fine soil can stay suspended in the air for hours and building occupants will be breathing this germ laden dust long after the cleaning operation. This is especially important in the

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healthcare environments. This germ laden dust is simply picked up from the floor and jetted into the air along with the bacteria which can float around and settle on surfaces, food and worst of all, open wounds. So it is important to ensure that a vacuum cleaner has High Efficiency Particle Air (HEPA) filtration so that it removes this finer dust from the air and not just recycling the dust.

The Australian Standard 3733/1995 “Textile Floor Coverings –Cleaning and Maintenance of residential and commercial carpeting” states that vacuum cleaner filtration should be down to 0.5 microns. What's a micron? A human hair is up to 20 microns in diameter. The human eye can see down to about 10 microns. A particle of 10 microns in diameter is generally

the size of the little sparkle you see floating in the air when sun shines through a window. Each of these little bits of dust can harbour bacteria, and these are the ones you can see.

Just to compound the issue, some poor quality equipment may be sold as having HEPA filtration but the leaks in the enclosure can bypass the filtration system and make it ineffective at removing the finer soils.

To Bag or to be Bagless? That is the question.

The bag is not only there to collect soil. It is part of the filtration system that cleans the exhaust air. Poor quality bags may have larger pores through which the air passes. The finer the holes, the better the filtration and the faster they will clog up with soils which then limits the airflow which reduces the effectiveness of the machine. A multi stage filtration is often required to ensure efficient passage of air with maximum retention of soils.

Bagless vacuums are popular in the household range. These are a real concern in the workplace. While they may tick all the boxes in regard to efficiency and effectiveness, they are a real hazard when it comes time to empty the dirt container. As you bang and shake the container the dust (and Germs) will turn into a large cloud of dust that the operator is likely to breathe in. A vacuum cleaner fitted with disposable bags will be much safer to use. You simply unclip the bag and cover the hole with the little sticker and then drop the bag in the bin and fit a new bag. This is much safer for the operator and of course stops the dust blowing all around as the vacuum cleaner is emptied.

How often should you empty a vacuum? It should be emptied when the bag is around 2/3rds full. If the bag is allowed to fill completely it blocks the airflow. When you have no airflow, the machine won't pick up soil, it will be just making noise and you will be wasting time and money.

So think about these things and decide what it is that you are trying to achieve. If you are wanting a healthy indoor environment and wanting to maintain your carpet in the best possible condition and want to do it efficiently then invest in a good quality machine that is fitted with HEPA filtration, disposable dust bags and has an agitator bar. Agitator heads can be purchased separately for suction only machines.

Col Nation is a cleaning industry trainer with a long history of experience, especially in the field of carpet and upholstery technology and maintenance. Colin is a trainer with the Daniels Associates of Australasia Pty Ltd and is the Australian director of the international WoolSafe Organisation which is a certification body for the carpet industry.

The Daniels Associates conducts training in Hospitality with a focus on cleaning for health. Check out www.danielsassociates.com.au for more information on training options.

www.woolSAFE.com.au can provide a list of highly qualified carpet cleaners that can provide a range of services to both domestic and commercial carpet owners.