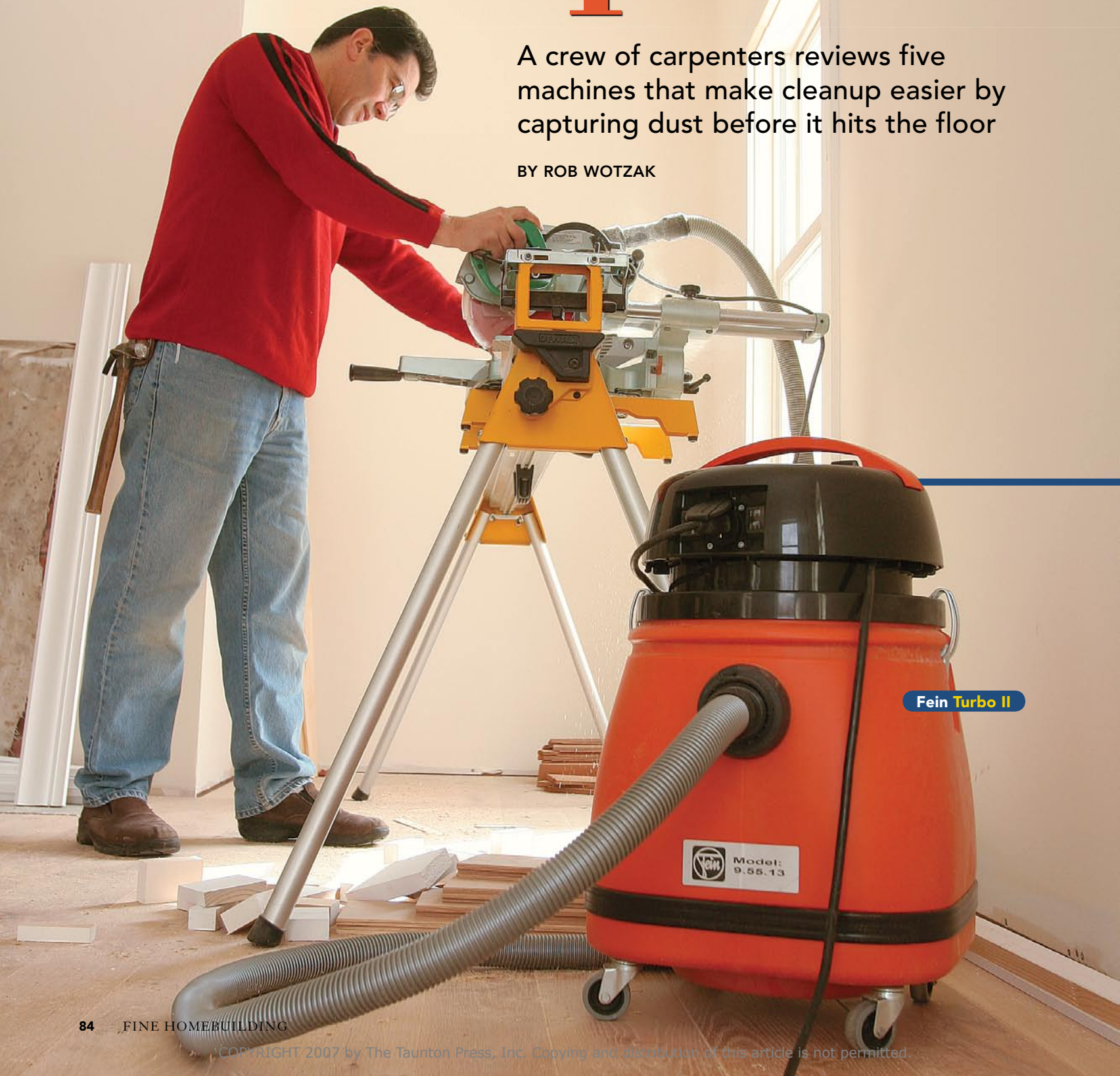
Tool-Triggered Shop Vacs

A crew of carpenters reviews five machines that make cleanup easier by capturing dust before it hits the floor

BY ROB WOTZAK



Fein Turbo II

For most of my carpentry career, my routine has been to work all day with various power tools, make a large mess, and clean up just before heading home at night. My dust-control measures were limited to a standard shop vacuum, a broom, and a dust pan. Working with tool-triggered vacuums, which are actuated by the power switch on a portable tool, has changed my perspective on job-site cleanliness. These machines make cleanup easy by collecting dust as it's made, extracting it through the dust port on my random-orbit sander, power planer, miter saw, and other power tools. More important, they reduce the amount of dust in the air, increasing the healthfulness of my workspace.

My crew and I recently tried out five of these vacuums during a carriage-house restoration project. Keeping the 2000-sq.-ft. space clean while processing hundreds of linear feet of boards with saws, sanders, and planers gave us plenty of time with each vacuum. I also brought the vacs back to my shop for even more cleanup work.

The vacuums in this review range in price from $270 to $500 and have a variety of features that surely will sway purchasing decisions based on the type of work you do.

Tool-triggered vacuums are really easy to use. Connect the vacuum hose to the exhaust port of the power tool in use, plug its cord into the receptacle on the vacuum, and press the switch or turn the dial that activates the automatic function. The vacuum starts operating when you turn on the power tool or pull the tool's trigger. When the tool is shut off or the trigger is released, the vacuum continues to run for several seconds to extract any residual dust left in the hose.

Of course, you can use these vacuums in normal mode, sucking up dust, debris, and water through various wands and nozzles.

Power controls allow optimum performance and circuit protection

My old vacuum was grossly underpowered. Sure, it would suck up sawdust and fine drywall debris, but at the end of the day, I still found myself sweeping up larger shavings along with stray nails and drywall screws. All the vacuums in this review picked up this type of debris with ease. In fact, no one on my crew even clogged a machine during the time the vacuums were in our possession.

A few machines have power-management systems designed to maximize tool perfor-

Festool Cleantec (CT) 33

Milwaukee 8936-20

Bosch 3931A

Porter-Cable 7812

RATINGS EXPLAINED Each vacuum was put through a series of tasks, and its performance was rated on a scale of 1 to 5.

POWER This rating measures the vacuum's ability to pick up dust, nails, screws, wood chips, and shavings.

FILTRATION/DUST COLLECTION A clogged filter cuts suction power. This rating covers the accessibility of the filter and the ease with which it can be cleaned and replaced. Top-rated vacuums feature manual or automatic filter-cleaning capability to maintain maximum power.

NOISE A decibel meter (left) was positioned 4 ft. from each vacuum at ear level to achieve the most-realistic readings. A 70-db. rating is about the noise level you'd encounter sitting in a running car. A diesel truck heard from a street corner is equivalent to about 85 db.

EMPTY AND CLEAN All the vacuums in the test can be fitted with dust bags that simplify dry-waste disposal. Replacement bags are expensive, though, so the ability to empty and clean a machine without a bag is important. A well-designed vacuum also has useful features for emptying liquid contents.

MOBILITY We evaluated how easy it was to move a machine from the truck to the shop and around a job site. Stable, compact designs; convenient cord storage; well-functioning wheels; and good carrying handles all figured in the rating.

OVERALL DESIGN This rating takes into account a combination of features, including the manufacturing quality of each component and the layout of switches and dials as well as how well all the elements of the machine work together to create a user-friendly dust-collection system.

RATINGS SCALE
1 Poor
2 Fair
3 Good
4 Very good
5 Excellent

mance without overloading electrical circuits. The Festool and the Bosch vacs allow you to dial down the power demand of the vacuum motor, thus allocating more amps to the tool you're using. The Festool can be modified to draw as few as 3 amps or as many as 10 amps. Aside from circuit protection, Festool suggests turning down the vacuum's power when using sanders. At full power, the suction can hold a sander firmly to the wood's surface, adversely affecting sanding quality.

Bosch has a method of circuit protection called the Power Broker System. To use this feature, subtract the portable tool's amp rating, which is located on the tool data plate, from the supplying circuit, either 15 amps or 20 amps. Turn the Power Broker dial to the difference, and the vacuum modifies its draw, allowing you to work within the capacity of the circuit.

The Milwaukee vacuum automatically alters its amperage draw to accommodate different tools. The motor reduces its power consumption when high-amp tools are in use and returns to full power when the tool is shut off.

Bosch 3931A

www.boschtools.com

PRICE **$415**

Dust bags **$6 each**

Accessory kit **$45**

Power **11 amps (full power)**

Capacity **13 gal.**

Noise **80 db.**

Weight **45 lb.**

Cord length **26 ft.**

Standard hose **1½ in. by 10 ft.**

RATINGS
- 5 Power
- 4 Filtration/dust collection
- 2 Noise
- 3 Empty and clean
- 2 Mobility
- 3 Overall design

PROS Onboard accessory storage, automatic filter-cleaning system, manually controlled circuit protection, best drainage system for wet contents.

CONS Loudest vac tested, bulky canister impedes emptying and maneuvering, awkward to empty without filter bag, very low ground clearance even with big rear wheels.

BOTTOM LINE Although it's not a vacuum you'd want to move in and out of your truck, the Bosch is an excellent performer in the shop.

Well-designed drainage. *The Bosch is the only vacuum with a drain plug. Its location at the bottom of the vac ensures a complete release of wet contents.*

Quality components and a compact design increase mobility

The Porter-Cable, Fein, and Milwaukee vacs are compact and lightweight enough to carry up and down a flight of stairs, and also light enough to pull out of a truck bed without jeopardizing your back. If you try hauling the Festool or Bosch in and out of a vehicle as you would the other machines, something is going to give, and I assure you it won't be the vacuum handle. To make these larger, heavier machines easier on the user, Bosch and Festool integrated tubular-metal rear handles and large rear wheels in their machine designs. This enables them to be maneuvered much like a hand truck.

By the end of the day, I'm eager to get home and relax. The last thing I want to deal with is the frustration of working with a tool that complicates cleanup. How easily a vacuum skates around a floor plays a large part in how enjoyable it is to work with. When considering mobility, perhaps no feature is more important than where the vacuum meets the ground: the wheels. Small-wheeled machines, including the Bosch and the Porter-Cable with their small front casters, are at a disadvantage to a vacuum with large wheels like the Festool. Stray power cords, pulled nails, and other debris can stop small wheels in their tracks. I was surprised by how stable all the machines were, though. I didn't have to worry about spilling or damaging a vacuum because I inadvertently pulled it over some strips of drywall or trim scraps.

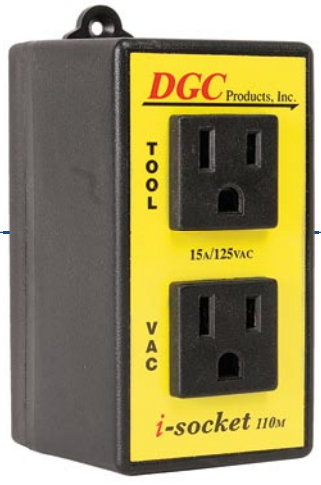
Disposable bags and drainage systems make emptying easy

All the models in this review can be fitted with dust bags that make emptying the canisters a hassle-free process. Bags also limit the amount of dust that can clog the filter and decrease the vacuum's power.

The most notable difference among bags is their price. A pack of five bags for the Milwaukee costs around $40—a whopping $8 per bag. Porter-Cable bags are the least expensive, around $4 apiece.

All these vacs can be used without bags, but I wouldn't recommend using the Bosch or the Festool without one. Upending both of these machines to empty their canisters is awkward. The Porter-Cable is the easiest machine to work with when not using a bag. The canister's smooth edges and squared-off back corners funnel contents easily into any size of receptacle.

All the vacs we reviewed are designed to collect water as well as dry dust and debris.



Already own a shop vac?

The $35 DGC I-socket plugs into any 15-amp wall outlet and adds tool-triggered functionality to a standard shop vacuum. Visit www.dgcproducts.com for more information.

Milwaukee 8936-20

www.milwaukeetool.com

PRICE **$275**

Dust bags **$8 each**

Accessory kit **$90**

Power **9.5 amps**

Capacity **7.5 gal.**

Noise **75 db.**

Weight **17 lb.**

Cord length **18 ft. 7 in.**

Standard hose **1½ in. by 7 ft.**

PROS Compact size, large accessory-storage bucket, simple power-management feature.

CONS No internal filter-cleaning system, no drain for wet contents; low-quality casters don't move over debris well.

BOTTOM LINE This basic vacuum gets the job done, but it could use some better-quality wheels.

RATINGS
- 4 Power
- 3 Filtration/dust collection
- 4 Noise
- 3 Empty and clean
- 3 Mobility
- 3 Overall design

Porter-Cable 7812

www.portercable.com

PRICE **$270**

Dust bags **$4 each**

Accessory kit **$60**

Power **9 amps**

Capacity **10 gal.**

Noise **77 db.**

Weight **20 lb.**

Cord length **22½ ft.**

Standard hose **1½ in. by 14 ft.**

PROS Light and maneuverable, low and stable design, easiest machine to dump when dust bag isn't used, filter can be cleaned or replaced without removing canister top.

CONS Poor filter-cleaning mechanism, weak wheel locks, no drain for wet contents, HEPA filters not available.

BOTTOM LINE A useful combination of size and features makes this vac a good value that could be great with some small improvements in design.

Good concept, poor design. *To clean the filter, a ridged shaft is drawn across the pleats. But a small handle and a shaft that doesn't contact the entire filter make this system less effective.*

RATINGS
- 4 Power
- 3 Filtration/dust collection
- 4 Noise
- 4 Empty and clean
- 3 Mobility
- 4 Overall design

But the Bosch is the only machine that has a drain plug. The Festool collects water in a storage tank that needs to be removed from the vacuum for emptying. That's a better design than the other vacs, but still not as effective as Bosch's system.

The Fein, the Milwaukee, and the Porter-Cable all lack a drain or a water tank, and trying to dump water or other fluids straight from these vacs is a strenuous, messy chore.

Some vacs have internal filter-cleaning systems

All filters eventually become clogged and cause the vacuum to lose suction. If the vacuum is being used regularly, filters need frequent cleaning. Three of the machines have an internal filter-cleaning mechanism that makes this job easy.

In the tool-activated mode, the Bosch has an automatic feature that's called Pulse Clean. When the portable tool is shut off, the vacuum remains on for seven seconds to clear the hose of dust. The machine then determines if the filters are dirty and, if needed, sends an electromagnetic pulse that causes the filter to shake, letting debris fall into the canister.

The Festool's system consists of a large handle and shaft that are slid manually in and out of the rear of the machine. Attached to the shaft are several fingers that rake across the pleats of the vacuum filter to dislodge any debris.

The Porter-Cable cleans its filters in much the same way as the Festool. Instead of a handle, though, the Porter-Cable has a small, hard-to-grip pull tab that is made even more difficult to operate by a strong internal spring. Also, at full extension, the internal teeth make contact with only a portion of the filter's pleats.

The Fein and Milwaukee vacuums don't have internal filter-cleaning systems, so each requires the removal of the motor assembly for filter cleaning. I don't mind this process when working with the Fein, though. When you remove the top of the Fein vac, the cloth-bag filter remains snug against the rim of the canister, giving you access to the clean inner surface of the bag. Outside, I remove the filter to clean it. When indoors, I keep the filter in place and shake the dust into the enclosed container.

The Milwaukee has a standard cartridge filter. Filters like these should be cleaned by removing them from the machine and shak-

Fein Turbo II

www.feinus.com

PRICE **$300**

Dust bags **$5 each**
Accessory kit **$90**
Power **8.7 amps**
Capacity **9 gal.**
Noise **71 db.**
Weight **29 lb.**
Cord length **16 ft.**
Standard hose **1¼ in. by 16 ft.**

Simplicity is not always a benefit. *A large handle and well-thought-out cord storage make this vac easy to transport, but the switches are difficult to tell apart.*

PROS Convenient cord storage, large carrying handle, quietest vac tested, durable latches and casters, compact shape and size.

CONS Small casters can hang up on debris, no drain for wet contents, switches are difficult to see.

BOTTOM LINE A quiet but powerful vac, the Fein is compact, easy to move around, and extremely durable in design and construction.

RATINGS
4 Power
4 Filtration/dust collection
5 Noise
4 Empty and clean
3 Mobility
4 Overall design

Festool Cleantec (CT) 33

www.festoolusa.com

PRICE **$500**

Dust bags **$6 each**
Accessory kit **$130**
Power **10 amps**
Capacity **8.7 gal.**
Noise **75 db.**
Weight **32 lb.**
Cord length **24 ft.**
Standard hose **1 in. by 11½ ft.**

RATINGS
5 Power
5 Filtration/dust collection
4 Noise
3 Empty and clean
4 Mobility
4 Overall design

Ergonomic and effective. *The large handle on the Festool's filter-cleaning system slides easily in and out of the rear of the machine to rid the filters of debris.*

PROS Good mobility for a large machine, unique Systainer system makes it easy to organize accessories and other Festool tools, strong wheel locks, blower capability, integral storage compartment.

CONS Awkward to empty dry debris without dust bags.

BOTTOM LINE Quality construction and well-designed details (like a separate water container for wet pickup) make this vacuum perform well in just about every situation.

ing them into a garbage can or by hosing them off and allowing them to dry.

Filter performance is more important than you might think

Keeping a tidy workspace is the most-obvious reason for having a quality filter in a vacuum, but limiting the amount of dust that you breathe is even more important. Construction dust can cause severe respiratory damage, including asthma and silicosis. Sawdust in particular has been listed as a known carcinogen.

Filters don't last forever. The easiest way to tell if your vacuum needs a replacement is to inspect the filter for damage. If the filters are torn or frayed, or if after the filter is cleaned the vacuum still seems to be lacking power, it's time for a replacement.

All the vacuums but the Porter-Cable have the option of upgrading to a HEPA filter, but the Festool is the only vacuum in this test that comes standard with one. (For more on HEPA filters, see "What's the Difference?" p. 102.)

Well-designed accessories make a good vacuum great

I ordered the basic accessory package available for each vacuum. Ranging in price from $45 to $130, these kits each include a wide floor nozzle, a crevice nozzle, a brush nozzle, and a long attachment handle. All the vacuums but the Bosch and the Porter-Cable also include a 5-in. or 6-in. attachment for cleaning upholstery.

Fein's kit contains a filter for water pickup. It also has a floor nozzle with a foot-activated switch to retract an integrated brush. This allows you to move easily from hard to carpeted floors without changing nozzles.

The Festool's kit stands alone. It too comes with a water-pickup filter. It also comes with a wide-diameter hose and a modular accessory-storage box. In fact, most Festool accessories and tools come in these proprietary Systainer boxes that can be clipped on top of the machine or on top of each other. Some kits contain metal extension tubes and wands. But don't assume that metal always performs better than plastic. The Festool kit has lightweight plastic parts that are so comfortable and effective that my crew and I found ourselves wanting to use them even when working with the other vacuums.

Hose adapters are another useful accessory. They help to attach a vacuum hose to different-size exhaust ports. For less than $5, I bought my adapters from Lee Valley (www.leevalley.com) and Woodcraft (www.woodcraft.com).

These vacuums stand out in value and performance

After working with these vacuums for several weeks, I would be glad to add any of them to my stable of tools. However, two machines really impressed me and the guys.

Compact and cleanly designed, the Fein gets our vote for the best value. This vacuum's strong metal latches and casters help to ensure a long-lasting tool. The vacuum is also available with a variety of filter options that make it suitable for the collection of most any type of debris. Its small size and quiet motor make it great for working in tight places, but it still has plenty of power for larger projects.

When considering all the details of a complete dust-collection system, the Festool comes to mind first. It's extremely mobile for its size and allowed me to perform most tasks with the least amount of compromise. It's also the only machine with a blower, which I found useful when clearing leaves that found their way into my shop. Also, the antistatic hose on the Festool improves safety when used with tools that generate a lot of static electricity, like a shop planer. Of all the vacuums in the test, the Festool is definitely the one I would most like to own. □

Rob Wotzak is a carpenter in New Milford, Conn. Photos by Rob Yagid and Charles Bickford.

Is this vac worth the price?

The most-expensive tool-triggered vac I found has an odd name and is made by a company you've probably never heard of. Nilfisk-Alto, the world's largest manufacturer of professional cleaning equipment, makes this $825 vacuum whose initials stand for Rental Duty Filter Drywall Extreme Clean.

According to its U.S. distributor, Steve D'Gerolamo of Ultimate Garage, the 12-gallon RDFD XC is the Lexus of all vacuums and has a filter-cleaning system like no other machine on the market. Nilfisk-Alto makes other vacuum models, including the Attix 8 AS/E, which is more on par with the other vacs in this review. But I couldn't pass up the chance to review this elite machine.

I was immediately impressed with the automatic filter-cleaning system. On startup and in 30-second intervals, the vac cleans alternating halves of its massive filter with streams of air, eliminating the need to clean the filter manually. This ensures that the vac functions under optimum power at all times. The vacuum has variable speed control, which allows the vac's amperage draw to be set between 5 and 10 amps. For additional circuit protection, it has a soft-start motor.

I found the RDFD XC to be a quiet, well-designed workhorse that is mobile and easy to empty. But did this high-priced vac truly make my job site a cleaner, healthier, more pleasant place to work? Yes, it did, but no more so than the top-rated vacs in this review. If I worked in extreme dust every day or relied on my vacuum as an essential component of my business rather than a convenient addition to my tool set, I'd consider placing an order. For my basic carpentry needs, though, the RDFD XC is too much machine for too much money.

Alto/Wap Attix 12 RDFD XC

www.ultimategarage.com
www.nilfisk-alto.com