

# Shop Vacuums

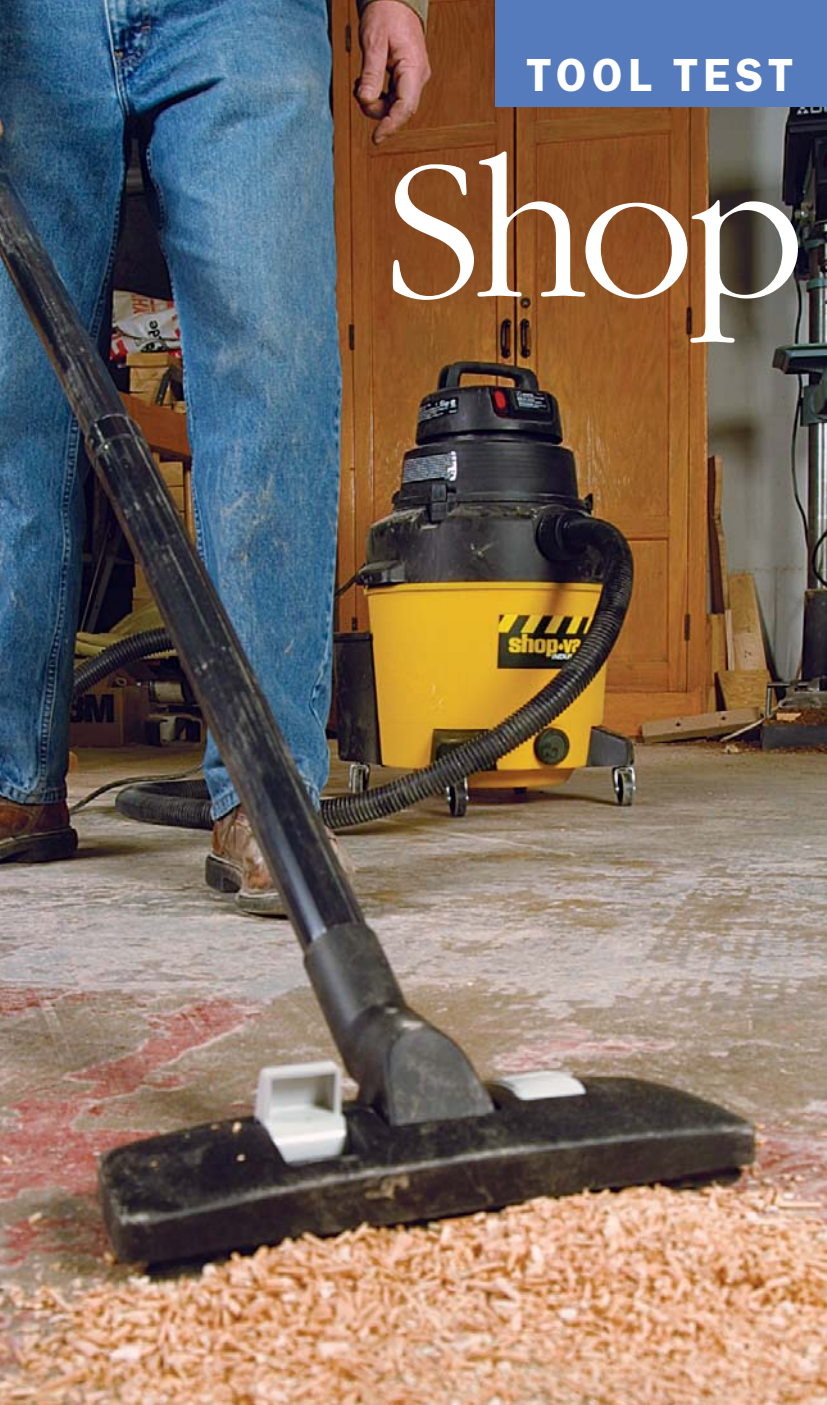
Newest machines are quieter and offer more features

BY ROLAND JOHNSON

Dust is an unfortunate by-product of woodworking. One of our best defenses is the shop vacuum. Woodworkers appreciate the vacuum for its versatility in the workshop. It can pick up as well as blow dust out of hard-to-reach corners and is commonly used as a dust collector for small power tools.

From the legion of shop vacuums on the market, I selected 13 that range in price from under \$100 to about \$700: Alto Wap SQ and SP; Craftsman 17922 and 17924; Fein 9.77.25; Festool CT 33 E; Milwaukee 8927 and 8955; Porter-Cable 7814; Ridgid WD16650 and WD1735; Shop-Vac QL60OD and QUL625.

A number of new features distinguish today's crop of shop vacuums from their predecessors. For one, significant strides have been made to reduce that shrieking whine that grates on the ears and nerves of the operator. My old shop vacuum could reach decibel levels of about 94—nearly the same level as thunder. It could drown out even the loudest woodworking machine in my shop. Though all of the vacuums I looked at were quieter



ALTO WAP SQ AND SP



CRAFTSMAN 17924 AND 17922





## Vacuum as dust collector

than those of a few years ago, the Fein, the Festool, both Alto Waps and the larger Craftsman all were paragons of aural restraint. With decibel levels ranging from 58 to 69 (the level of a normal conversation), cleaning the shop became an almost serene experience.

Other noteworthy features available on many of the machines presented here are auto start and variable-suction force. Though not new, these often overlooked features are worthwhile for people who work a lot with orbital or belt sanders. Auto start allows you to plug a machine into the power outlet on the vacuum's control panel. Then, as you switch the machine on or off, it will cue on or cut off the vacuum's motor. The auto-start feature isn't appropriate for use with a larger tool because it will draw too many amps and blow fuses, but it comes in handy for light-duty applications. Variable-suction force allows the user to adjust the speed of the vacuum motor, which lets you clean off your benchtop without worrying about sucking up hardware.

For this comparison, I looked at the utility of each machine based on endurance, adaptability and ergonomics. This sampling will provide you with a pretty good idea of what to expect from a variety of available brands and help you decide what size and features are best suited to your needs.

### Vacuums all have adequate power

No shop vacuum has the power or longevity to replace a dedicated dust-collection system. But a number of them will work well enough as portable dust collectors for benchtop machines in small shops or as backups to larger systems.

To collect wood dust from machines that generate significant amounts of it, a vacuum requires a moderately powerful motor, the ability to take a large-diameter (2½ in. dia.) hose and a good-size collection tank that's reasonably easy to empty.

Some manufacturers test power by seeing how tall a column of water the machine can suck. But my approach to testing was more low tech; I used each of the machines in a variety of situations around the shop and noted my observations. I found that all of the



*The shop vacuum also serves as a portable dust collector. Depending on the shop, it may be the only means of dust collection or it may be a backup to a larger system.*



**FEIN 9.77.25**



**FESTOOL CT 33 E**





## Filter types affect airflow

**Pleats increase efficiency.** Pleated paper filters offer a sizable increase in surface area, which allows the machine to breathe easier.



**Gravity works.** Milwaukee's quarter-sphere-shaped filter utilizes gravity to keep big particles of dust from collecting on it.



**More room for debris.** Filters located at the top of the vacuum (Festool, shown, and Porter-Cable) don't take up valuable space inside the dust-collection tank.

vacuums had adequate power, as long as I kept the filter from clogging. And then it hit me. What separated the titans of suction from the rest of the pack was not necessarily power but endurance. The design of the filtering system is a critical path to long-lasting performance.

### Filter types and designs affect performance

As the vacuum tanks filled with sawdust, some of the machines proved better at maintaining good suction than others. In general, the better performers had filters situated horizontally above the tank, away from the debris, so they came in contact with debris only when the tank was nearly full. From an engi-

neering standpoint, this design was a clear winner. Placing the filter on top of the unit keeps it breathing right and does not rob the tank of volume because its filter is not taking up interior space.

Within my test group, only the Porter-Cable and the Festool have the filtration systems above the tank. In addition to having an optimum filter location, both the Porter-Cable and the Festool have filter-shaking mechanisms that work with their pleated paper filters. The base of the filtration compartment holds a push rod with small fingers that protrude between the filter pleats. By pulling and pushing the rod, the operator can knock off big stuff from the filter without opening the tank. The Porter-Cable goes one step further, providing an access door for easy removal of that filter without having to open the tank.

Most of the vacuums I looked at have cylindrical, pleated paper filters that attach to the base of the motors and project downward into the tanks. This type of filter gets phys-



**PORTER-CABLE 7814**

**RIDGID WD16650 AND WD1735**

**SHOP-VAC QL600D AND QUL625**



ically submerged in sawdust, ultimately reducing its airflow.

Some of these filters can be covered with a foam sleeve to extend filter life. The Fein and both of the Alto Wap machines offer these sleeves. In addition, the Alto Waps have a couple of cloth covers available that line the tank. They were great at collecting fine wood dust, and the cloth was simple to shake out when dust overload caused a noticeable loss of suction.

Though not located entirely above the collection tank, the filtration system of the Milwaukee 8927 was ingeniously simple and effective. Its quarter-sphere-shaped filter hangs from the top of the collection tank. The round shape utilizes gravity to keep debris from building up on it as the tank fills, but the tank was cumbersome to empty. Overall, though, the 8927 was solid. Every switch and connector had positive action. For use as a dust collector, it requires an adapter to fit a standard 2½-in.-dia. hose. It carries a hefty price tag, yet it remains a popular choice among home-based woodworkers.

### When to use large vs. small hoses

Hose diameter is critical to the function of a vacuum, particularly when the machine is used as a dust collector. A 2½-in.-dia. hose will carry the volume and size of debris that planers and router tables produce. All of the units, except the big Milwaukee (which needs an adapter), are equipped with either a port or an adapter to accept a standard 2½-in.-dia. hose. This hose size will handle most debris. Larger hoses, coupled with extension wands, are best for sweeping the shop floor.

A small hose diameter, however, is best for using a shop vacuum with small portable tools, such as sanders and saws. The Festool, designed for light-duty dust collection, is a convenient size and has a variable-speed motor, auto-start capability and the most flexible hose of the bunch. Its 7-gal. tank proved more than adequate for light-duty dust collection and had plenty of suction power to sustain hours of sanding. The Festool combines a thumb-controlled slide gate with a motor-speed switch that allows you to tweak suction force. It gave me good latitude while attacking a variety of jobs around the shop.

### Exhaust should be a breeze

The Craftsman 17924, both Milwaukee's, the Ridgid WD1735, the Shop-Vac QUL625 and the Festool have exhaust outlets that can be used as a source of high-velocity air. The Ridgid WD1765, made by the Emerson Tool Co., has a detachable blower that could be handy for clearing leaves or blowing chips into a pile.

Unfortunately, those exhaust outlets can increase the airborne dust in your shop. I don't like skyward exhaust ports; inevitably, I will lean over the blast and get a face full of dust. Side exhaust



## Making a good connection

**A fast and firm grip.** The push-and-lock spring catch connection on the Ridgid models is fast, easy and keeps a good grip.



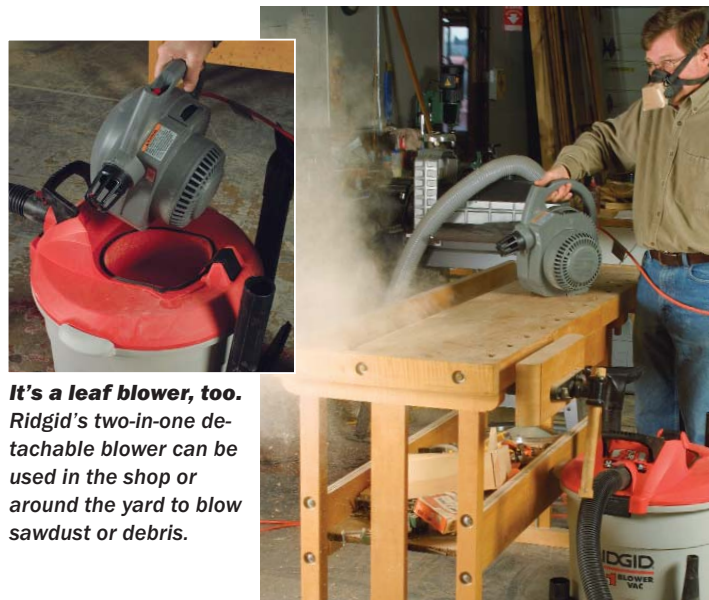
**A tight fit.** Threaded screw-on ports on the Shop-Vacs hold fast, even when they're pulled around by their hoses.

ports can send billowing clouds of wood flour through the shop should I inadvertently point it at a dusty shelf.

The Shop-Vac QUL625 and the Festool have ports that, when not used for high-velocity air, are closed, and the air is diverted through diffusers for a "soft" exhaust. The Alto Waps, the Fein, the Porter-Cable and the Shop-Vac QL60OD also have diffusers that turn the exhaust blast into a gentle breeze.

### Details that make a difference

Five of the shop vacuums that I tested get around on four casters, while the other eight rely on front casters (or, in the case of the little Milwaukee, a single front caster) and two fixed wheels at the rear, like a shop cart. Most of the dolly-style carriers also have a handle. If you have a habit of leading around your vacuum by its



**It's a leaf blower, too.** Ridgid's two-in-one detachable blower can be used in the shop or around the yard to blow sawdust or debris.



**Plug into auto start.** A receptacle right on the vacuum will turn the machine on and off in concert with the tool.



**Variable suction adds control.** Regulating motor speed gives scope to cleaning and light-duty dust collection.

## Shop vacuums head to head

MODEL/CONTACT INFO	COST	AMPS	CAPACITY	AUTO START
<b>ALTO WAP SQ</b> (201) 262-0412 www.ultimategarage.com	\$495	13	10 gal.	Yes
<b>ALTO WAP SP</b>	\$695	13	15 gal.	Yes
<b>CRAFTSMAN 17922</b> (800) 349-4358 www.craftsman.com	\$79.99	11	12 gal.	No
<b>CRAFTSMAN 17924</b>	\$449.99	9	12 gal.	No
<b>FEIN 9.77.25</b> (800) 441-9878 www.feinus.com	\$290	10	14.5 gal.	Yes
<b>FESTOOL CT 33 E</b> (888) 337-8600 www.festool-usa.com	\$445	10	7.9 gal.	Yes
<b>MILWAUKEE 8927</b> (262) 781-3600 www.milwaukeetools.com	\$599.95	7	21 gal.	Yes
<b>MILWAUKEE 8955</b>	\$227	8	10 gal.	No
<b>PORTER-CABLE 7814</b> (888) 848-5175 www.porter-cable.com	\$306	9	15 gal.	Yes
<b>RIDGID WD16650</b> (800) 474-3443 www.ridgidwoodworking.com	\$119	12	16 gal.	No
<b>RIDGID WD1735</b>	\$139	12	16 gal.	No
<b>SHOP-VAC QUL625</b> (570) 326-3557 www.shopvac.com	\$119	11.9	16 gal.	No
<b>SHOP-VAC QL600D</b>	\$314.95	10	12 gal.	No

\*Decibel readings taken at low and maximum power

hose, you'll need a machine that does not ride on a rear-axled cart. Also, look for a hose that locks into its port. Each of the smaller units presented here followed me without resistance. The Festool and the Alto Wap SQ, with their built-in rear axles, proved to be smooth, hose-driven come-alongs. The large Craftsman, both of the Milwaukeees and the Porter-Cable are not built to be used this way.

Emptying the tank was a chore with some of the machines. I had to remove the accessories from their various mounts or lift their tanks out of their caddies before emptying them. If I failed to do this, I wound up fishing the tools out of the sawdust bin. The Ridgid WD1735 has tool mounts on the tank cover but still relies on a cart-handle-mounted caddy for storage. I found the best solutions to this annoyance on the Craftsman 17924 and the Festool. The Craftsman has a caddy that can be removed and a tank that

can be separated from its cart. The Festool has storage boxes that clamp onto the vacuum base and are easily removed.

Most of the vacuums come with two-piece extension wands for floor sweeping, but with the exception of the Craftsman 17924 and the Alto Waps, the wands are annoyingly short.

Forcing quantities of wood dust through a plastic tube is a good way to demonstrate how static electricity is produced. If you end up being the conduit for that discharge, the shock won't hurt you, but it is irritating. The Porter-Cable, the Alto Waps and the Festool all have grounding devices for the hose, eliminating shocks.

### How do you choose?

Every one of the shop vacuums tested provided adequate performance. So, even though we all have a different approach to de-

VARIABLE-SPEED MOTOR	NOISE LEVEL*	WEIGHT	HEIGHT (ON BASE)	EXHAUST	COMMENTS
Yes	59-66 dB	24 lbs.	20 in.	Diffused around motor housing; very soft	Quiet; has variable-speed motor; overall, was a standout in the crowd
No	63 dB	33 lbs.	26 in.	Diffused around motor housing; very soft	Well-designed feel, from base to hood latches; unfortunately, has no variable-speed motor
No	76.5 dB	27 lbs.	19 in.	Side port; adequate	Low center of gravity gives good stability; good value for the price
No	69 dB	52 lbs.	34 in.	Side port; adequate	Canister's stainless-steel design not prone to rust; motor draws fewer amps than others of its size
No	65.5 dB	36 lbs.	29½ in.	Diffused around motor housing; very soft	Removable cloth filter gave good performance while vacuuming dust; quiet; fairly priced
Yes	58.5-68.5 dB	32 lbs.	22 in.	Diffused around motor housing; very soft	Loads of accessories available; quiet; has variable-speed motor
No	75 dB	56 lbs.	40 in.	Side port; adequate	Designed for commercial use; should last a lifetime; good filter design
No	79 dB	32 lbs.	38½ in.	Exhaust port on top; harsh	Three-wheeled base was awkward at times; durable; noisy; skyward exhaust port was annoying
No	74.5 dB	34 lbs.	30 in.	Side diffuser; very soft	Good filter location; well-engineered filter-removal system; impressive commercial design at reasonable price
No	75 dB	26.3 lbs.	27 in.	Side port; adequate	Removable blower capability makes model an especially good value
No	78.5 dB	21 lbs.	27 in.	Side port; adequate	Large latches and light, no-lip tank made emptying a breeze
No	74.5 dB	25 lbs.	26 in.	Diffused side port; very soft	Easy-to-use switches; 2 dB quieter than its predecessors
No	72 dB	25 lbs.	29 in.	Diffused side port; soft	Motor is less powerful than others in this price range but is fine for light-duty dust collection

ciding which vacuum is best for our workshops, I'll share a few of my favorites.

I found the Porter-Cable 7814 to be a well-designed machine. Though a little louder than some, its accessible filter system, relatively light weight, large collection tank, bayonet-style locking hose connector, exhaust diffuser, static grounding and auto-start feature made it a strong finisher. I just wish a larger-diameter hose were standard equipment.

If I needed another shop vacuum and money were no object, the Alto Wap SQ would be my choice. Its purring, quiet motor, auto-start feature and variable-speed motor made it hard to beat. The small tank and small hose were drawbacks for all of the heavy-duty dust collection I require, but the machine felt like it had been built for the long haul. A close second to the Alto Wap SQ was the

well-appointed Festool. However, it came with more accessories than I needed.

Finally, there is the Craftsman 17922. With this basic, low-cost machine (\$79.99), you can clean your shop and then easily store the vacuum. It's a good bargain.

Like any machine, the design of a shop vacuum is a study in compromise. No single unit carries every perfect characteristic. But in learning of the advent of new features and gaining a better understanding of the strengths and weaknesses that are inherent in today's machines, you should be able to proceed with confidence as you choose which shop vacuum will provide the best overall value for you. □

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