

# Soup Up

Get finer filtration  
and more power  
from any single-  
stage collector

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AND BILL PECK

ADD A FINE FILTER

Grizzly, Oneida, and Wynn Environmental sell state-of-the-art aftermarket filters that will keep your airways cleaner. But without a separator stage or baffle (opposite), these filters clog quickly, killing the power and performance of your dust collector.



# Your Dust Collector

The dangers of wood dust have been well-chronicled in this magazine. Most people now realize that it is the tiniest, hardest-to-capture particles that are the worst, lodging deepest in the lungs and staying there the longest.

Everyone agrees on the problem, but a lot of people can't afford the best solution: a cyclone dust collector, with state-of-the-art filtration, hooked up permanently to every dust and chip producer in the shop. A good-sized stationary cyclone costs upwards of \$1,000, and you'll spend a lot

more for the ducting and blast gates required to put the suction everywhere you need it. Of course, you can save money by buying a smaller, portable cyclone and connecting it to one or two tools at a time, but you'll still be in for a grand or more.

The good news is that there are ways to boost the performance of a less-expensive single-stage dust collector, whether you own one already or are starting from scratch. The key is conquering the shortcomings of these portable machines: sub-par filters that clog quickly.

## The trouble with single-stage collectors

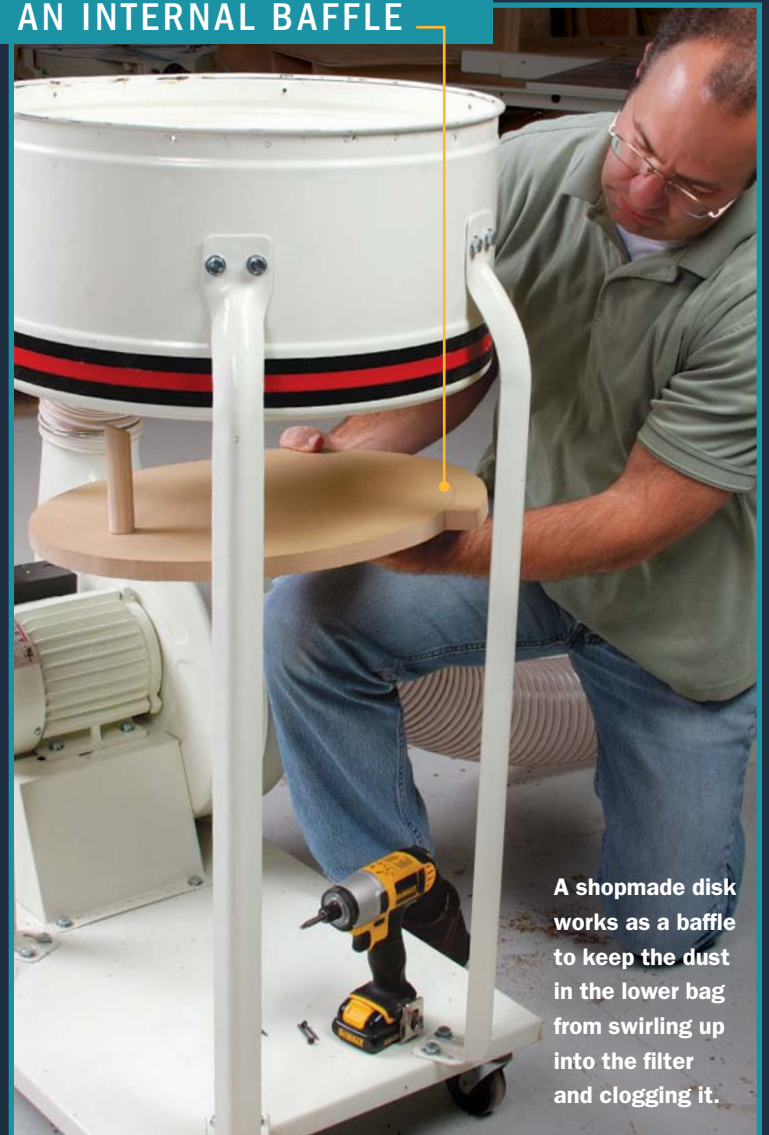
As we pointed out last year in "A Revolution in Dust Collection" (*FWW* #223), even the best single-stage dust collectors come with compromised filters that won't grab the smallest particles, those under 1 or 2 microns in size. Fortunately, three companies, Grizzly, Oneida, and Wynn Environmental, now sell much better aftermarket pleated filters that grab the most dangerous dust particles. But a better filter alone isn't enough.

The trouble—and the reason manufacturers don't put better filters on their

## AND A SEPARATOR OR AN INTERNAL BAFFLE



A separator stage grabs the vast majority of the dust before it reaches the dust collector, keeping even the finest filters clean and the suction strong.

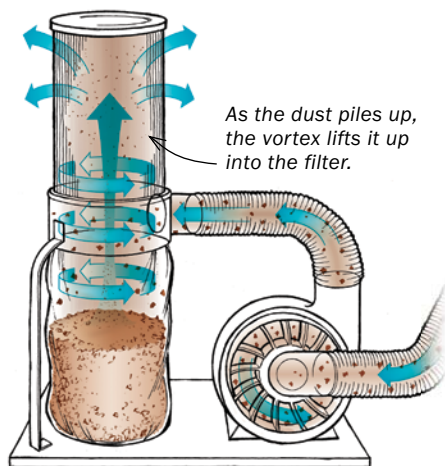


A shopmade disk works as a baffle to keep the dust in the lower bag from swirling up into the filter and clogging it.

# Finer filters clog quickly

With a single-stage system, as the lower bag fills with dust and chips, the swirling air begins to grab it, carrying it up into the filter. If that filter is too fine, it clogs quickly.

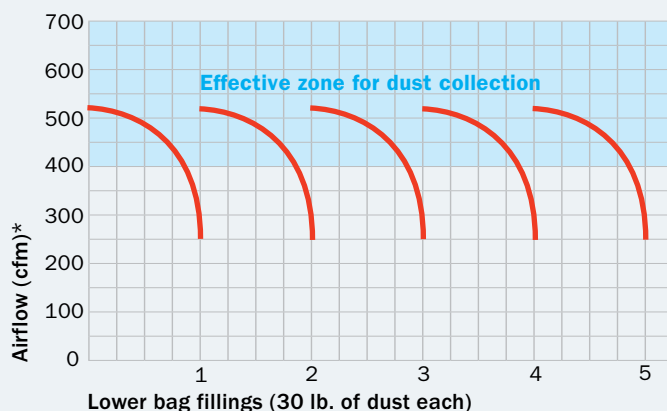
## SINGLE-STAGE SYSTEM



**Test pipe doesn't lie.** We measured airflow (in cubic feet per minute, or cfm) as we filled and emptied the lower bag many times.

## ONE BAGFUL IS ENOUGH

We ran the dust collector with an aftermarket filter in place but no separator, until the bag filled. We repeated the test, cleaning the filter each time we emptied the bag. The filter clogged every time.

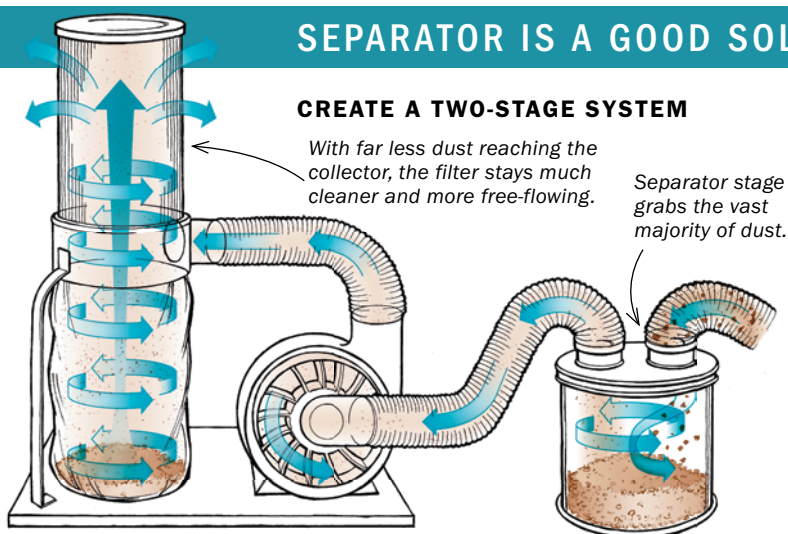


single-stage collectors in the first place—is that this type of collector doesn't have a separation stage that catches most of the dust before it reaches the filter, like a cyclone does. That means that all of the dust and chips reach the lower bag of the dust collector, and though we can't see exactly what happens, the following is our best guess based on our testing numbers.

When the lower bag gets to about half full, the vortex, or swirl, begins to pull dust up into the filter area, clogging it

## SEPARATOR IS A GOOD SOLUTION

### CREATE A TWO-STAGE SYSTEM



### TWO CHOICES

#### SUPER DUST DEPUTY

\$200 (\$290 with steel drum)  
Oneida-Air.com

#### TRASH CAN CYCLONE LID

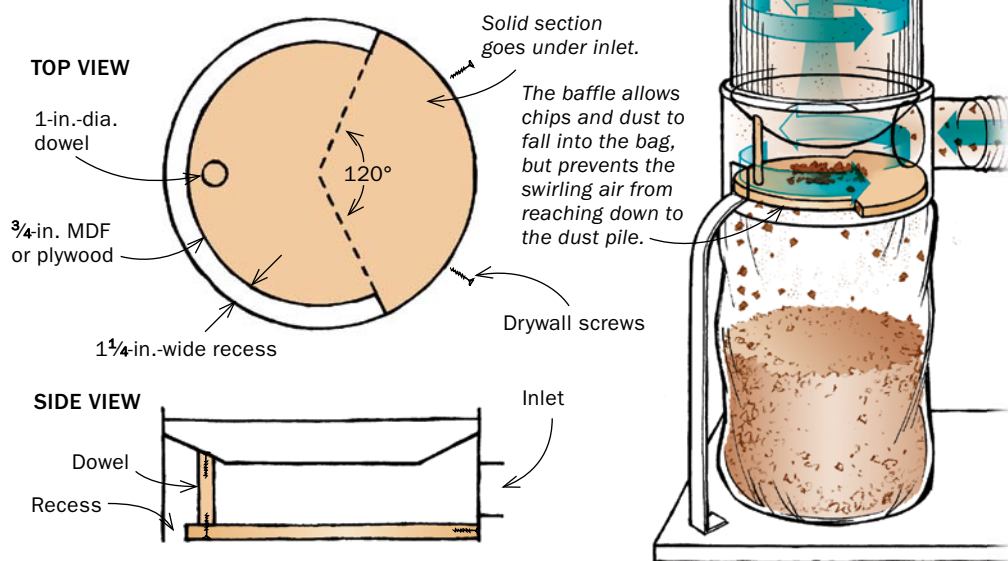
\$33  
Woodcraft.com





## THIEN BAFFLE IS A SHOPMADE OPTION

J. Phil Thien's internal baffle, described on his website ([jphtien.com](http://jphtien.com)), was easy to install on our Jet DC1100 1½-hp single-stage collector, which is similar to many others. To make it, you cut a circle to fit in the central metal drum of your collector, mark a second circle on it with a smaller radius, and then cut away part of the perimeter. You mount it just below the flow inlet.



**Insert from the bottom.** The baffle goes in from below, with a dowel acting to support and position it. Drive a screw through the internal cone into the dowel, and then two screws through the side of the collector drum into the edges of the baffle.

and killing airflow. Of course, when the flow slows, too much dust escapes at the source, and you are back to square one: a faceful of the fine stuff.

### Two good solutions

It's easy to add a separator to a single-stage collector. Last year we illustrated the benefits and showed you which ones work best. The Best Value option was a simple lid by Woodcraft that leads your dust hose to and from a trash can. The Best Overall

was Oneida's full-on cyclone-style separator, the Super Dust Deputy, which is pricier but works amazingly well.

However, another solution has been kicking around the Web for some time: a simple shopmade disk that goes inside your single-stage collector, keeping the dust vortex from rising into the filter area. This gizmo was conceived by J. Phil Thien a few years back, and is pretty well described on his website ([jphtien.com](http://jphtien.com)). Recently, Jet started building a similar

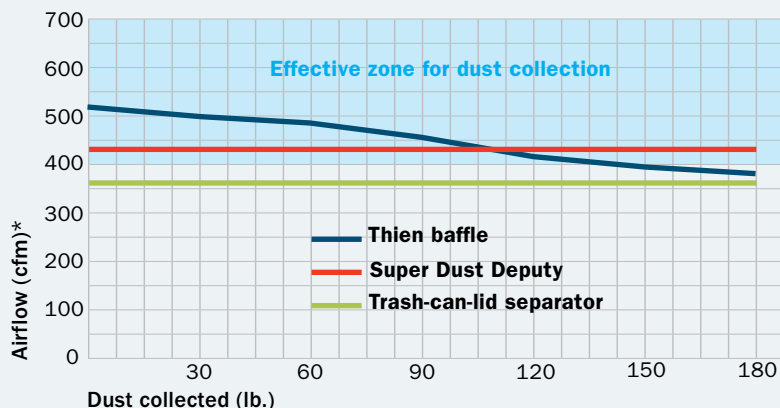


**Occasional cleanup.** When you blow out the filter, dust settles on the baffle and will get sucked up into the filter later. To prevent this, remove the filter and brush off the baffle.

### TWO SEPARATORS VS. BAFFLE

(WITH TYPICAL AFTERMARKET FILTER)

We teamed one of the aftermarket filters with each of the separators and also the Thien baffle, and loaded in 180 lb. of dust and chips to test each setup. We emptied the separators every 20 lb. With the baffle, the chips and dust do end up in the collector bag, and we emptied that every 30 lb. All three solutions kept the filter much cleaner than using nothing at all (opposite page, top), but there were differences. The separators stole more initial airflow than the baffle, but they keep the filter clean longer. On the other hand, you can get the highest airflow with the baffle, but it allows the filter to clog gradually, meaning you'll need to clean it every few times you fill the bag in order to maintain that high airflow rate.



\*tested with 1½-hp dust collector; airflow rate will be higher with more horsepower

# Filter face-off

There are three after-market filters that will catch the finest particles, each one a big improvement over the stock filters on today's single-stage dust collectors.



**GRIZZLY T23916  
CARTRIDGE FILTER**  
\$300  
Grizzly.com



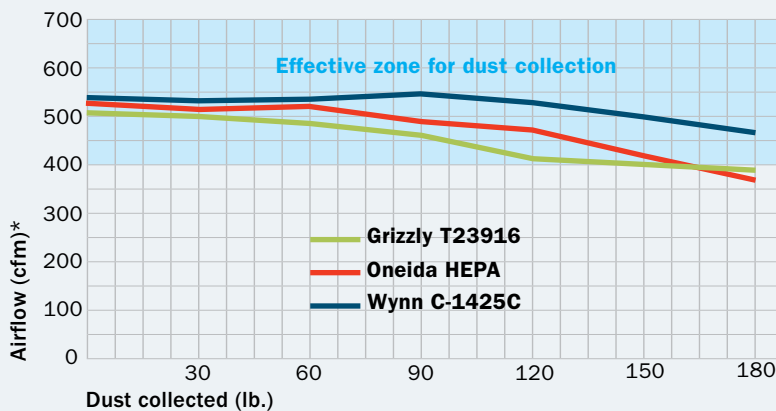
**ONEIDA HEPA MEDIA  
FILTER CONVERSION KIT**  
\$268  
Oneida-Air.com



**WYNN C-1425C**  
\$165  
Wynnenv.com

## SLIGHT DIFFERENCES

We tried all of the filters with the Thien baffle, which allows some dust to reach the filter. The Wynn was the least prone to clogging. On the other hand, the others can be easier to attach.



\*tested with 1½-hp dust collector; airflow rate will be higher with more horsepower

baffle into its Vortex line of single-stage collectors.

We decided to pair up all three separator options with the new aftermarket filters to see which setup is the best, most cost-effective way to collect dust with a single-stage machine. We wanted to know which combination keeps airflow the strongest and the longest before the filter requires cleaning.

So once again our indefatigable shop manager, Bill Peck, dragged our test equipment out of storage, lined up a typical 1½-hp single-stage collector, brought in dozens more bags of wood dust from a local millwork shop, and

## WYNN REQUIRES SOME DIY

There are a number of ways to attach the narrow Wynn filter to various dust collectors. The method that works on any model, and makes the filter easiest to take off and put back on when needed, is two shopmade plywood rings.



**Lower ring.** Make a plywood ring that fits the inside of your dust collector with a ¼-in. or smaller gap. Mount the ring about ¼ in. down from the rim, and use contact cement to glue ½-in.-square foam insulation along the top edge.



**Upper ring.** The filter attaches to another, wider plywood ring. When you screw the upper ring to the lower one, the foam insulation gets compressed, creating a good seal against both the plywood and the wall of the dust collector.





started pouring it into the hose and taking readings. Take a close look at the charts and conclusions, and you'll learn how to get the cleanest air for the least money.

### The bottom line

All three of our aftermarket filters are third-party certified to be MERV 15 or higher (meaning they collect 85% or more of particles 0.3–0.5 microns in size). We are not equipped to test filtration, so we took their word for it. What we *were* able to evaluate was how much additional airflow they steal, how quickly they clog, and how easily they attach to various dust collectors.

The initial airflow didn't turn out to be a big deal. None steal more than 5%. And when we teamed all of these filters with the Super Dust Deputy, they stayed clean indefinitely. The Thien baffle lets a bit more dust through, however, and that's where we saw a difference in filter performance.

The Wynn was the slowest to clog and dampen the flow. On the other hand, the Wynn requires the most work to fit most dust collectors. The Oneida filter comes with an adapter kit that works with many collectors, and Grizzly's aftermarket filter drops right onto Grizzly dust collectors.

Also, you can always unclog any filter and restore the airflow with compressed air, blowing from the outside in. But there is a hiccup here with the Thien device. When you blow out the filter, some of the fine dust drops onto the baffle, where it is simply sucked back into the filter when you turn the collector back on. So if you go with this shopmade solution, we recommend blowing out the filter about every third time you empty the lower bag, and taking off the filter each time so you can brush the dust off the baffle into the lower bag.

And finally, to collect dust efficiently from the biggest chip-producers in your shop, you need airflow of at least 400 cfm, and preferably 500. With our 1½-hp collector and our best filter/separator combos, we were able to keep flow levels in this critical zone, but only just. So we do not recommend these upgrades on dust collectors below 1½ hp, but we recommend them highly for dust collectors above that power level. □

Asa Christiana is editor of Fine Woodworking; Bill Peck is FWW's shop manager.

## Upgrading your collector

If you already own a single-stage collector, here are two great ways to improve its filtration and flow.



### WYNN C-1425C/ THIEN BAFFLE

**\$168**

You'll save a lot with this pairing, and have no separator to drag around. The downside is that you will need to blow out the filter occasionally, and remove the filter each time to brush off the baffle.

### WYNN C-1425C/ ONEIDA SUPER DUST DEPUTY

**\$368**

This combination will give you top-notch filtration with almost no clogging, meaning you will empty the separator dozens of times before you need to blow out the filter with compressed air.



### Starting from scratch?

If you don't already own a dust collector, and you don't have the budget for a cyclone, buy the most powerful single-stage collector you can afford, with the most basic filter. Grizzly's 2-hp G1029Z2 is only \$275 at Grizzly.com. Then pick one of the upgrade combos mentioned above.

**Go big, and bag the bag.** Buy a 2-hp or larger dust collector with a low-grade filter on it. Then just replace the filter and add a separator or baffle.