My Dust Collector Stuff

Canister Mod, Neutral vane, BT3000/BT3100 Belly Pan

By Loring Chien ©2006

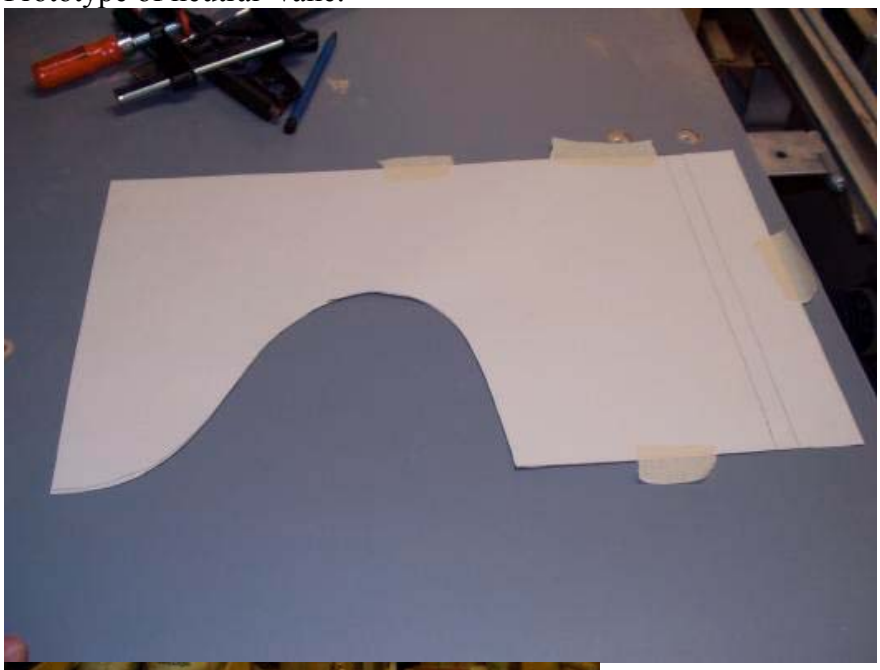
The HF 2HP DC is overrated at 1600 CFM by HF and inexpensive. Probably more comparable to the 1.5 HP, 1100-1200 CFM units sold by others that really put out more like 600-800 CFM in real life. But it's cheap, lately they have been on sale for $179 and you can often get a discount at HF. You're going to have to be able to read between the lines on the instructions. It comes with cloth bags that have a miserable 30 micron cut point. The Canister upgrade is from Grizzly for $165 from Grizz or Amazon. Penn State and Jet and others have these kits also, it fits this DC which has a standard 20" ring size. The canister does this: it has a pleated filter with approximately ten times the area of the 2 bag filters so it reduces air flow restriction, it has a 2 micron or better cut point, and allows the bottom bag to be a catch bag which is much easier to empty (disposable). The black handle on top is a flapper that when you rotate it, causes the fine dust to fall off the filter and into the bag and keeps the filter clean. Plastic bags are from Penn State (http://www.pennstateind.com/store/DCPB740.html) or Jet.

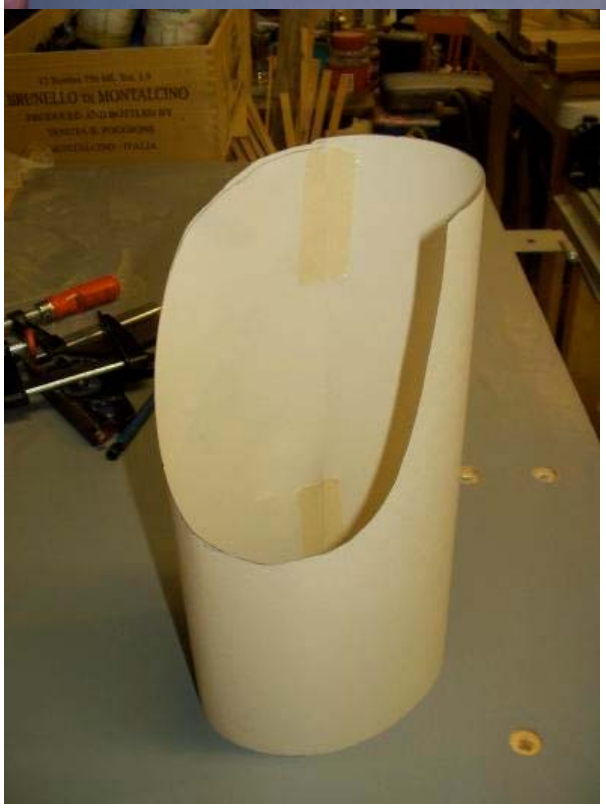
Harbor Freight 2HP Dust Collector (HF 2HP DC) with Grizzly canister filter and plastic catch bag from Penn State:

A Neutral vane is designed to direct the inlet flow in a circular or cyclonic pattern and avoid crashing into the vertical flow through the donut hole to the top filter. This to improve separation of the fines and the chips from the air flow. Recommended by Bill Pentz: http://billpentz.com/woodworking/cyclone/Index.cfm and specifically

http://billpentz.com/woodworking/Cyclone/CycloneMods.cfmin which he mentions the neutral vane.

Prototype of neutral vane:

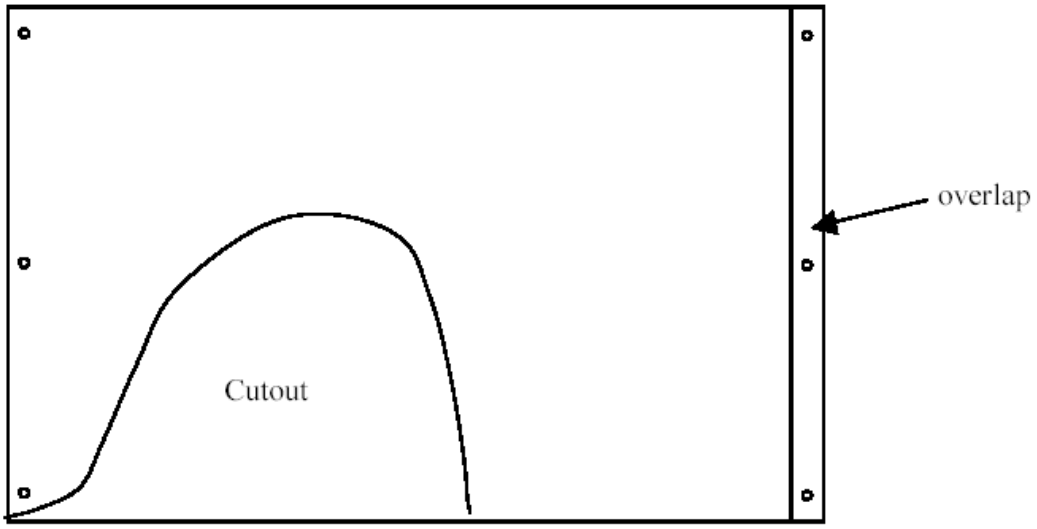




If you want to make one exactly like mine, here are the easy to follow template measurements:

I went to Lowes in search of sheet metal and the best thing I found was some unfolded round duct work. I think a unfolded 6” round x 24” piece would lay flat and exceed the approx. 10” x 16” size of the template. The first thing to do is cut off the crimped end so the piece will lay flat and apply the template.

Neutral Vane Template for HF 2HP Dust Collector



Sheet 10. high by 15-17/32 wide. This allows ½. for overlap; the circumference of the inlet is 15-1/32.
For the curve, mark a series of X-Y points using 0,0 as the lower left corner

0.,0.
1., 3/16.
2., 1/2.
3., 1-1/2.
4., 3-1/8.
5., 4-1/2.
6., 5-1/8.
7., 5-1/4.
8., 4-7/8.
9., 3-1/4.
9-3/8., 0

Neutral vane cut from sheet metal (I bought a piece of unfolded duct material and used some metal shears to cut it out) and installed, alternate views follow:

In operation everything seems to run as expected. I get all the chips and larger pieces of dust falling to the catch bag as hoped. I run the beater bar periodically on the canister (with the unit off) and a lot of fines fall from the top down to the bottom. As the bag gets relatively full then the amount of fines sucked to the top seems to get bigger and I use the beater more often, I then empty the catch bag or replace it.

Here you can see the swirling action quite well.

I installed mine when new, I never actually ran the DC without the NV. I should have measured the running current before and after the installation, but I didn't. That might have told me how well its working.

Here's a Belly pan installed in my Ryobi BT3000; with the rear dust port both connected to 4" hoses to the DC, it's very clean inside. Side cover was removed to show port.

Here's a bonus pic – my BT3000 tool holder (magnetically attached):

I also describe a remote control relay booster I use with my DC and a $8 remote wireless switch in a construction article, Instructions.pdf

This device will enable you to

1. use a remote control to safely switch the power to the DC since normal remotes cannot withstand motor starting currents reliably
2. use a Sears Autoswitch on your table saw to trigger the DC with the DC running on a second, separate AC circuit so that the first circuit can provide all its load current to the saw.
3. use a 120V remote control switch to switch the power to a DC operating from 220V

The parts cost is less than $20.the Sears Autoswitch will cost $20 or a remote wireless switch sometimes can be had for under $15.

LCC
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