Wide Thickness Sander
Shop Made

By Edwin Hackleman
May 2006

Inspired by plans in **ShopNotes** , I decided to make one similar, but wider. I used Ash for practically all the frame work. My sander handles up to a 25" panel, ranging anywhere from 3" to 1/4" thick. I also designed it to rest on the table saw and be driven from a 2-1/2" pulley on the TS (table saw) and a 5-1/2" pulley on the drum. Here is a shot showing the dust cover and the belt guard door open.

This is the ShopNotes machine...

Here are ten differences between my sander and the **ShopNotes** plans:

1) 25" wide:
ShopNotes 16",

2) Power driven conveyor belt:
ShopNotes - hand crank driven.

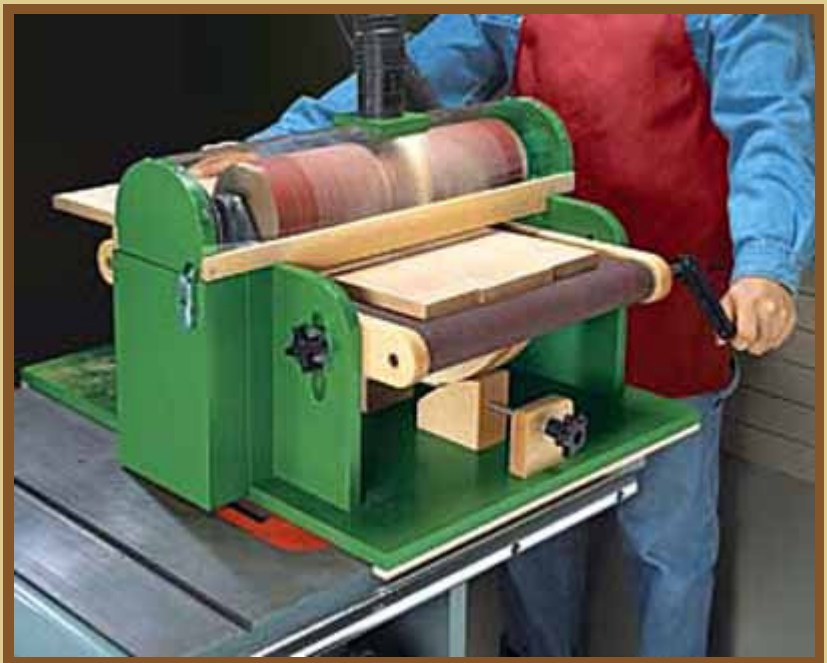
3) 8 Coarse height adjustment holes (staggered):
ShopNotes - 4 in line holes.

4) Flange, side mounted ball bearings for drum:
ShopNotes - pillow blocks

5) Flange ball bearings for conveyor rollers:
ShopNotes - bronze bushings.

6) Threaded holes tapped in hardwood for all machine screws:
ShopNotes - threaded inserts.

7) Ash hardwood used on all support frame pieces and platform base:



ShopNotes - MDF

8) Dust cover made with framed .07" Plexiglas: **ShopNotes** - .04" (much thinner) bent plastic.

9) Hardwood, shop-made spinner knobs; **ShopNotes** - plastic, store bought.

10) Conveyor platens with reinforced bracing; **ShopNotes** - no reinforcements

And here is the same angle with both the dust cover and guard door closed. Note that my dust cover is framed 1/16" Plexiglas. Bending that into a semi-circle proved impossible, so I framed it.

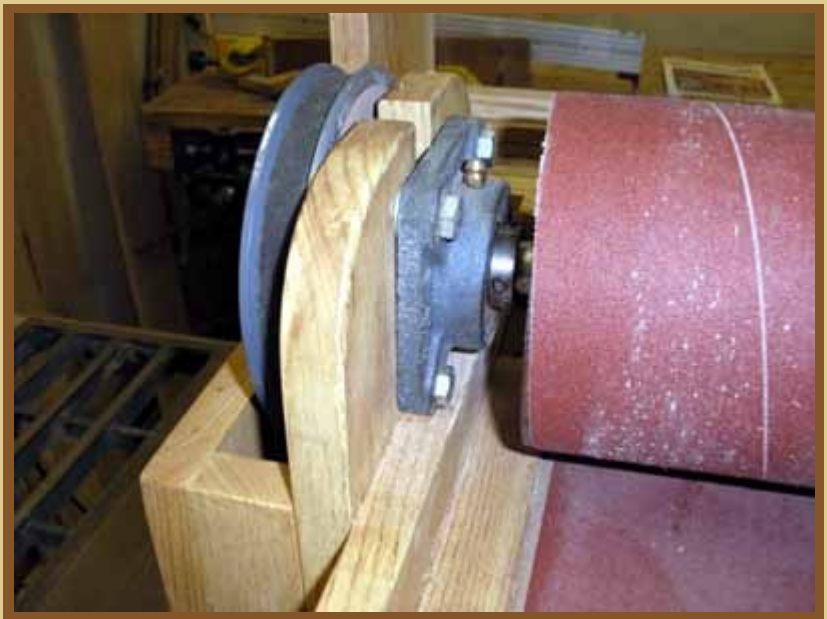
I used light-duty, self-aligning flange bearings for the conveyor belt. The extra width also required a couple or reinforcing rails between the platens because the 1/2" MDF under the wide belt \ would otherwise bend at the center. My major enhancement was to use a power drive instead of a hand crank. I mounted a 60 RPM gear motor and chain drive to propel the wide conveyor belt assembly.

My Shop Vac attached to the dust cover picks up at least 80% of the sanding dust.

Note: Bandsaw in background...
That's an old friend I can't bear to part with. I made that 25 years ago using plans and parts from **Gilliom Tool in St. Charles, MO.**

I modified the height adjustment mechanism a little, but basically, it's the same design as the one **ShopNotes** illustrated. It's rather amazing how fine this adjustment is.

Note that I used heavy duty flange bearings for the big 5" dia. sanding drum rather than pillow blocks. These work very well.



Note that I moved the conveyor belt tightening adjustment to the right of the vertical support. That makes it easier to get to with a wrench.

I also staggered the coarse height adjustment holes and bored two holes in the sides of the platen assembly to use them. In all instances, I did not use any threaded inserts. Instead, I tapped threads into the Ash.

Total materials cost: $194.50.

The best part about this machine is that it works! Just remember that **you only take off at most .002" of stock at a pass** and several passes are required.

Other units such as Performax ,might take off more thickness per pass, **but remember** that the more stock that you remove, the greater the load on the TS motor. You could stall it completely if you wanted to, even though mine is a Baldor rated at 1.5 Hp+. And then you also risk sanding a cup in the panel if the conveyor stalls out. That's something to avoid.

The idea is to take off at most the thickness of a sheet of typing paper, en route to a smooth, even finish. The ROS will still be needed to produce a 220- or 400-grit smooth surface.

The two biggest advantages I see that this

machine has over the thickness planer is that the wood grain can go any direction, and there is extra width.

This baby weighs about 80 lb... without it's own motor... about the same as my Dewey thickness planer. **I purposely avoided MDF for the base and side supports to save weight.** Note that my side supports are **two** 3/4" layers thick, whereas **ShopNotes** called for **three** to support the pillow blocks. So, I save a few pounds there also. And, the platform base is not a solid slab. I lap jointed 4" wide lengths of 4/4 Ash, all the same length.

One thing I forgot to mention, I used 6/4 Walnut disks to make the big drum--about 20. That saved a little weight also. Even Ash would have been heavier. Walnut smooths out very nicely also. Perhaps another good alternative would have been **Poplar. The point is, using MDF about everywhere adds unnecessary weight.**

If you mounted this on a bench and self-powered it with a 1-1/2 Hp motor, you are now looking at 130 lb or so. I could do this in the future, but right now I'm standing pat. The hookup time to the TS is surprisingly fast.

Most of the machine parts came from the **Surplus Center in Lincoln, Nebraska** (bearings, pulleys, and sprockets). I used cast iron pulleys, and they have no wobble at all--excellent precision. The flange conveyor bearings are sealed, and the big 3/4" heavy-duty flange bearings for the drum have grease zerks.

I bumped the conveyor shafts to 5/8" rather than 1/2" because of the extra width, and it's easier to find 5/8" bearings than 1/2". The chain drive is .025" pitch. The chain tension adjustment is my design. The motor is mounted to the conveyor assembly, not the main frame, so chain tension is independent of panel stock thickness.

I since outfitted it with a second gear motor that I can switch to and drop the speed 12 to 1 for cutting metal. The old beast just won't quit. The company may not even be in business anynore.

I estimate about 60 hours of work, but I did it off and on, mostly as a weekend and evening warrior.

There is also a learning curve involved. I could probably build a second one in less than half that time.

All the abrasives are sold by **Klingspor's.** The wide conveyor belt will never change.

I may buy a 180-grit sanding roll for the drum and use it now and then. The 120-grit that's mounted now seems to be best for general-purpose work. It takes about 20 minutes to wrap and secure the drum.

Thank you and enjoy,
Edwin